HD 1272

DRAFT COMPLETION OF WORK REPORT
VOLUME 2: FIGURES

FOR THE
CAMP EDWARDS IMPACT AREA
GROUNDWATER QUALITY STUDY

MASSACHUSETTS MILITARY RESERVATION
CAPE COD, MASSACHUSETTS

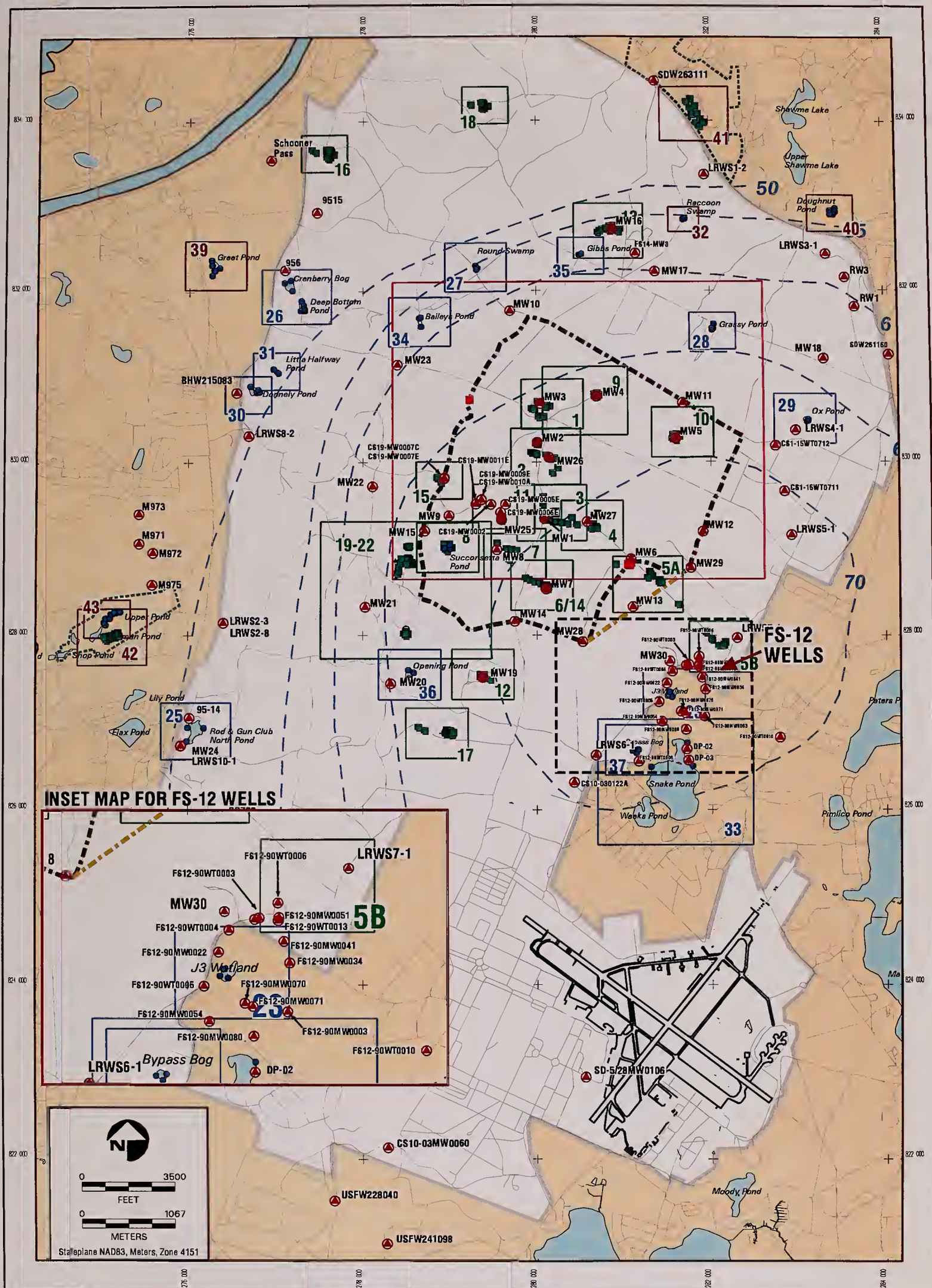
Prepared for

NATIONAL GUARD BUREAU
ARLINGTON, VIRGINIA

Prepared by

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
239 Littleton Road, Suite 1B
Westford, Massachusetts 01886

216--2



OGDEN

MMR Sampling Sites

FIGURE A

/mct/pulau/oahu/mmrdata/mmr/spatial/ogden/plots/figures/sampleareas_1117.aml

DRAFT 6/25/98

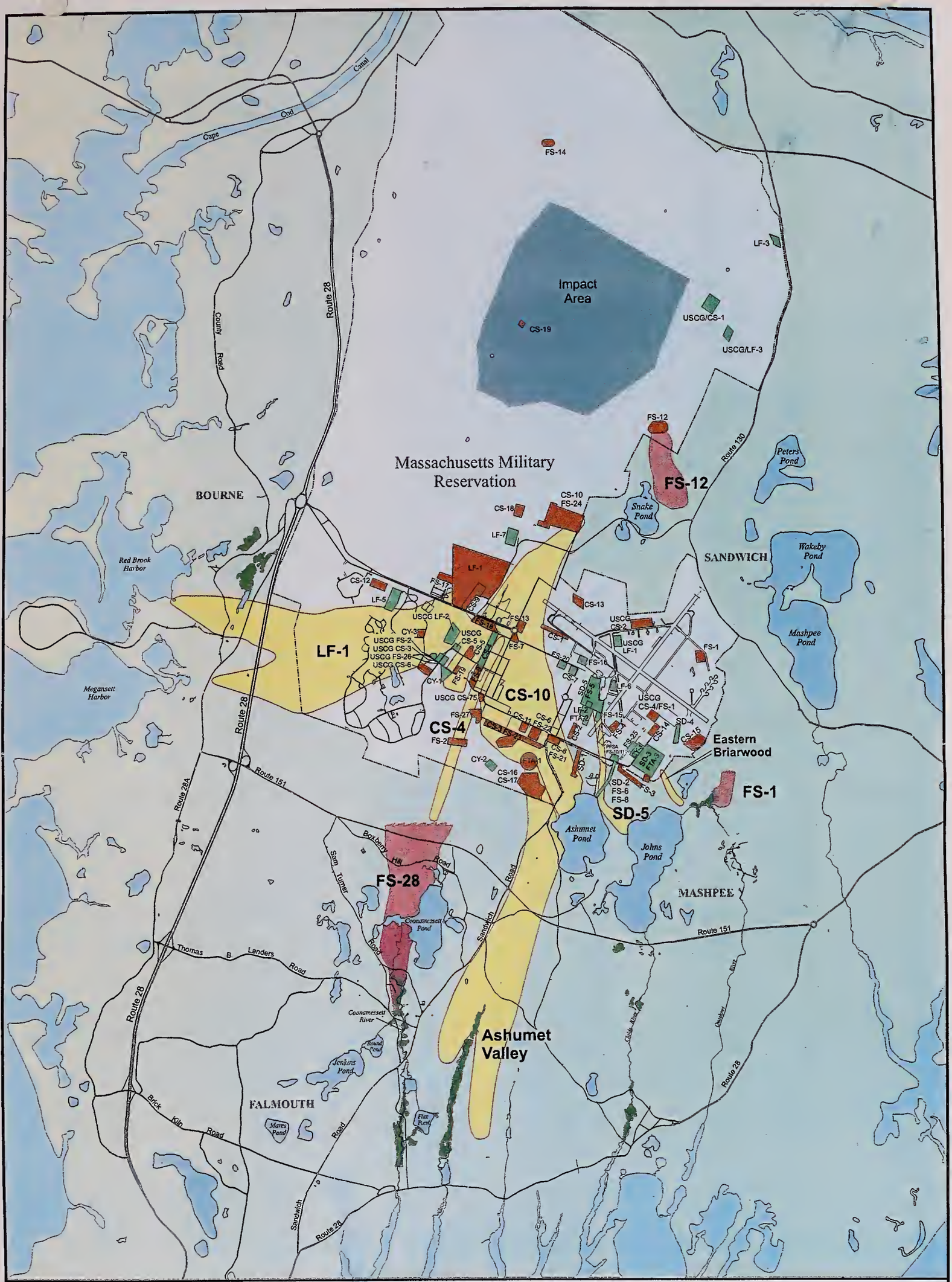


Figure B

Air Force Center for Environmental Excellence

JACOBS ENGINEERING

Plume Source Area Map
March 1998
Massachusetts Military Reservation
Cape Cod, Massachusetts

Digitized by the Internet Archive
in 2013

http://archive.org/details/draftcompletiono02unse

Figure C. Thickness (ft) of topset beds in the IAGS.

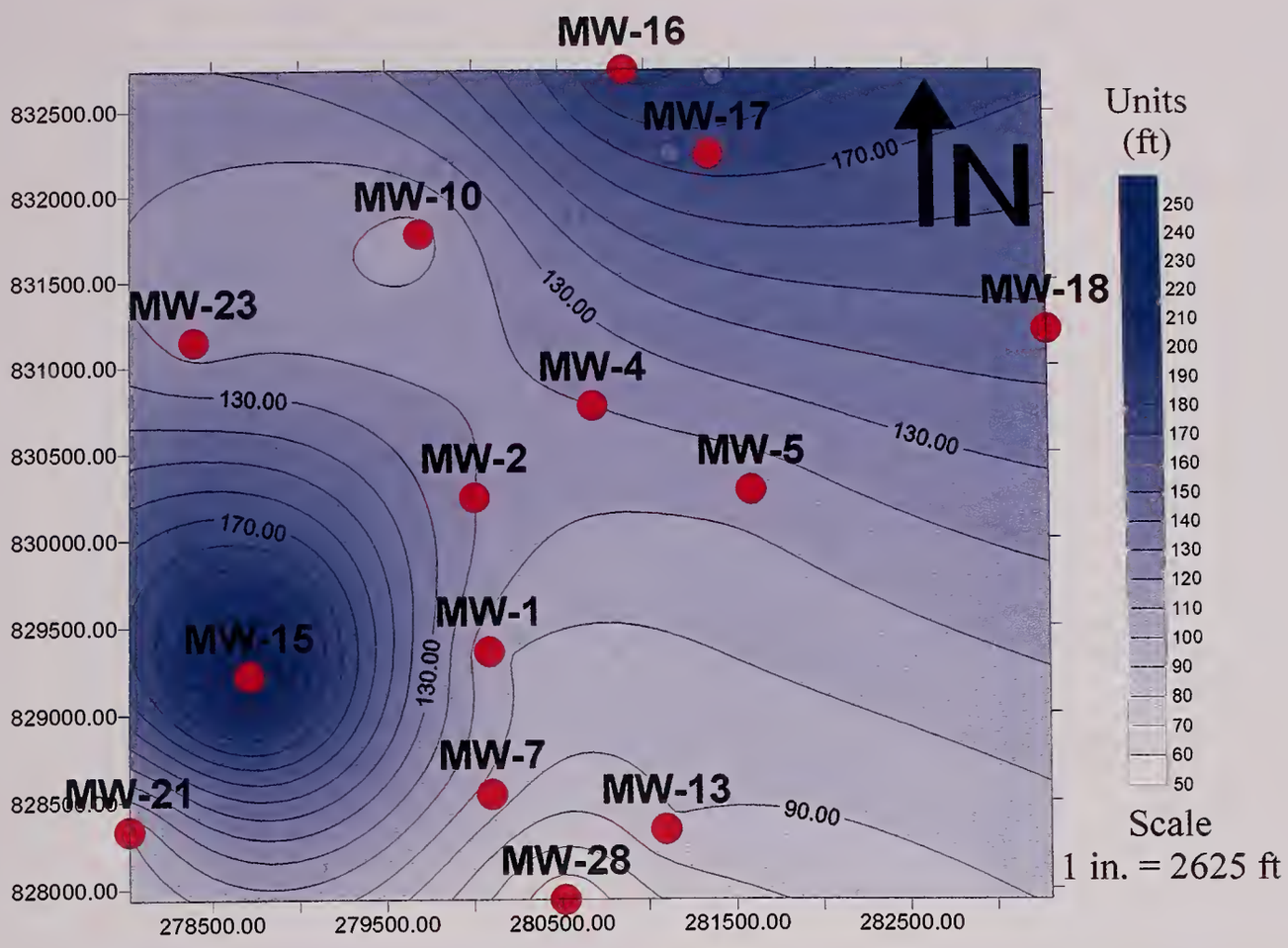


Figure D. Thickness of foreset beds in the IAGS.

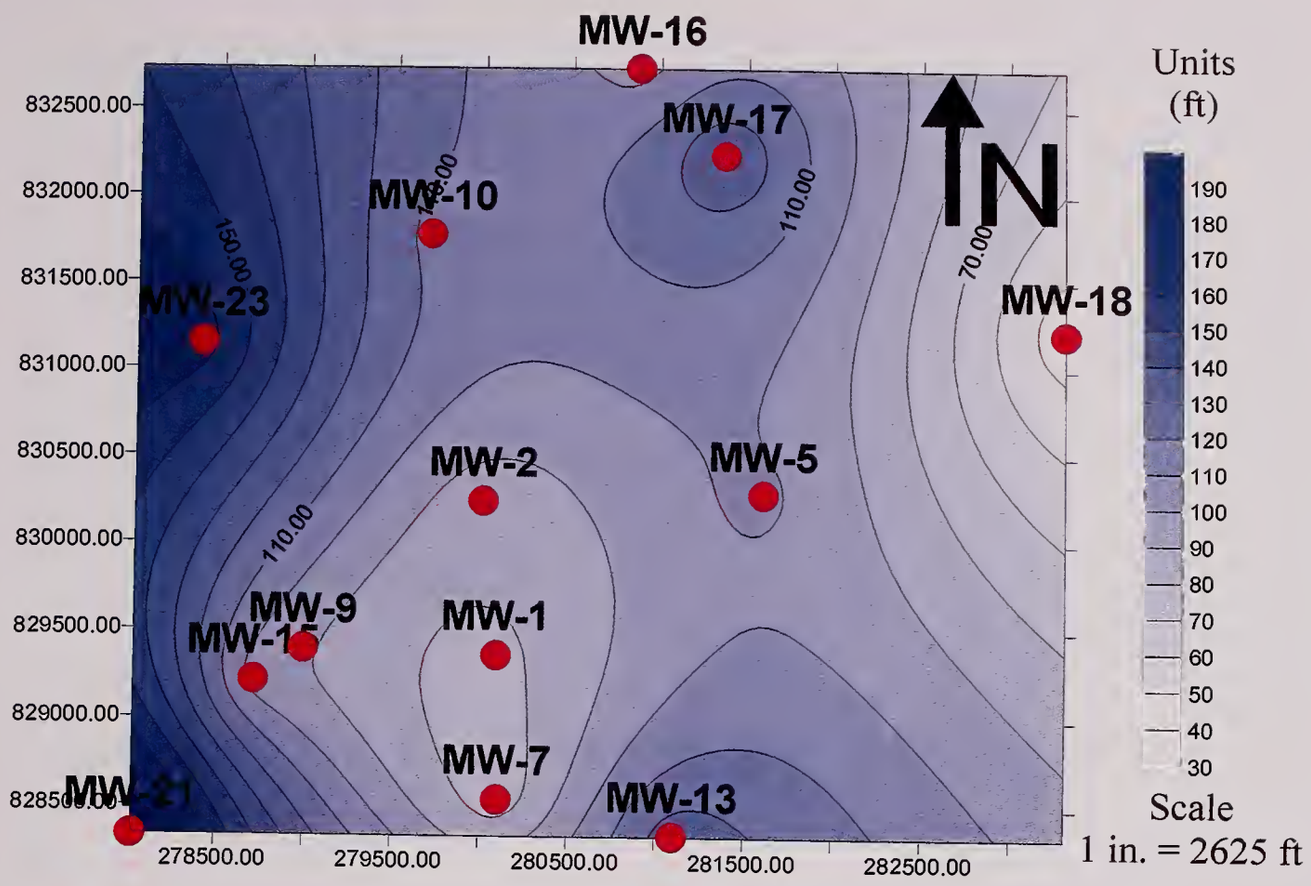


Figure E. Thickness of bottomset beds in the IAGS.

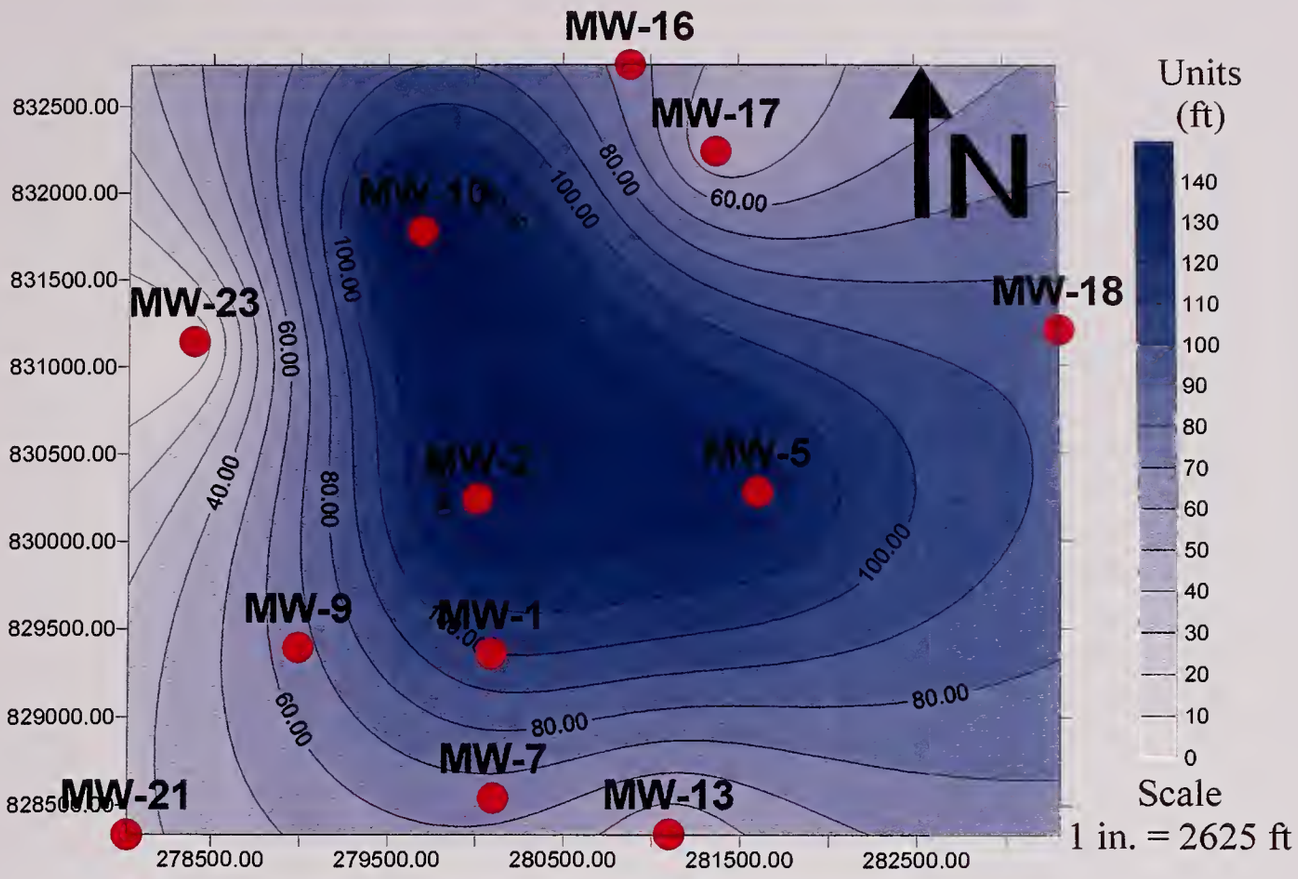


Figure F. Thickness of till in the IAGS.

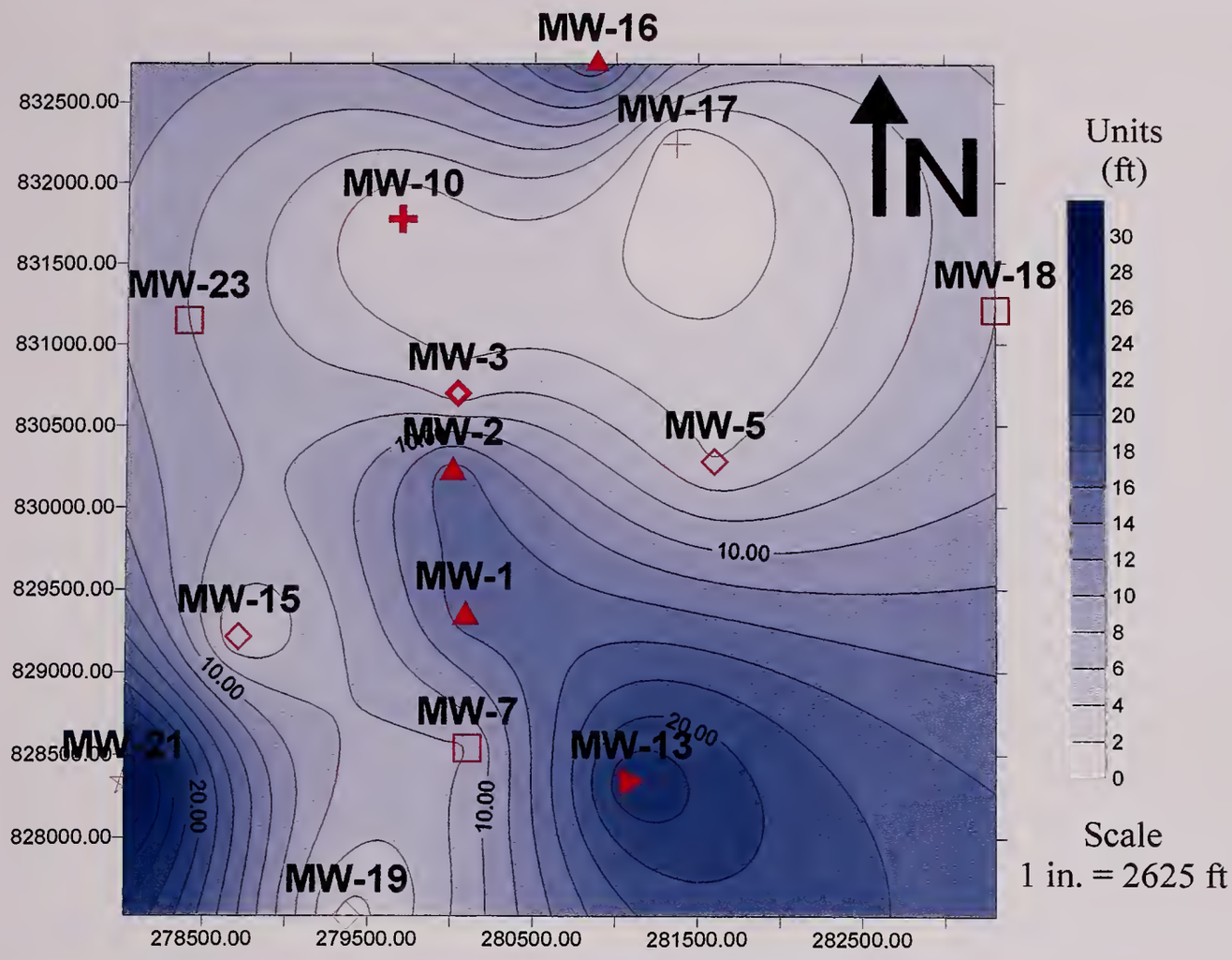


Figure G. Contour surface of till in the IAGS.

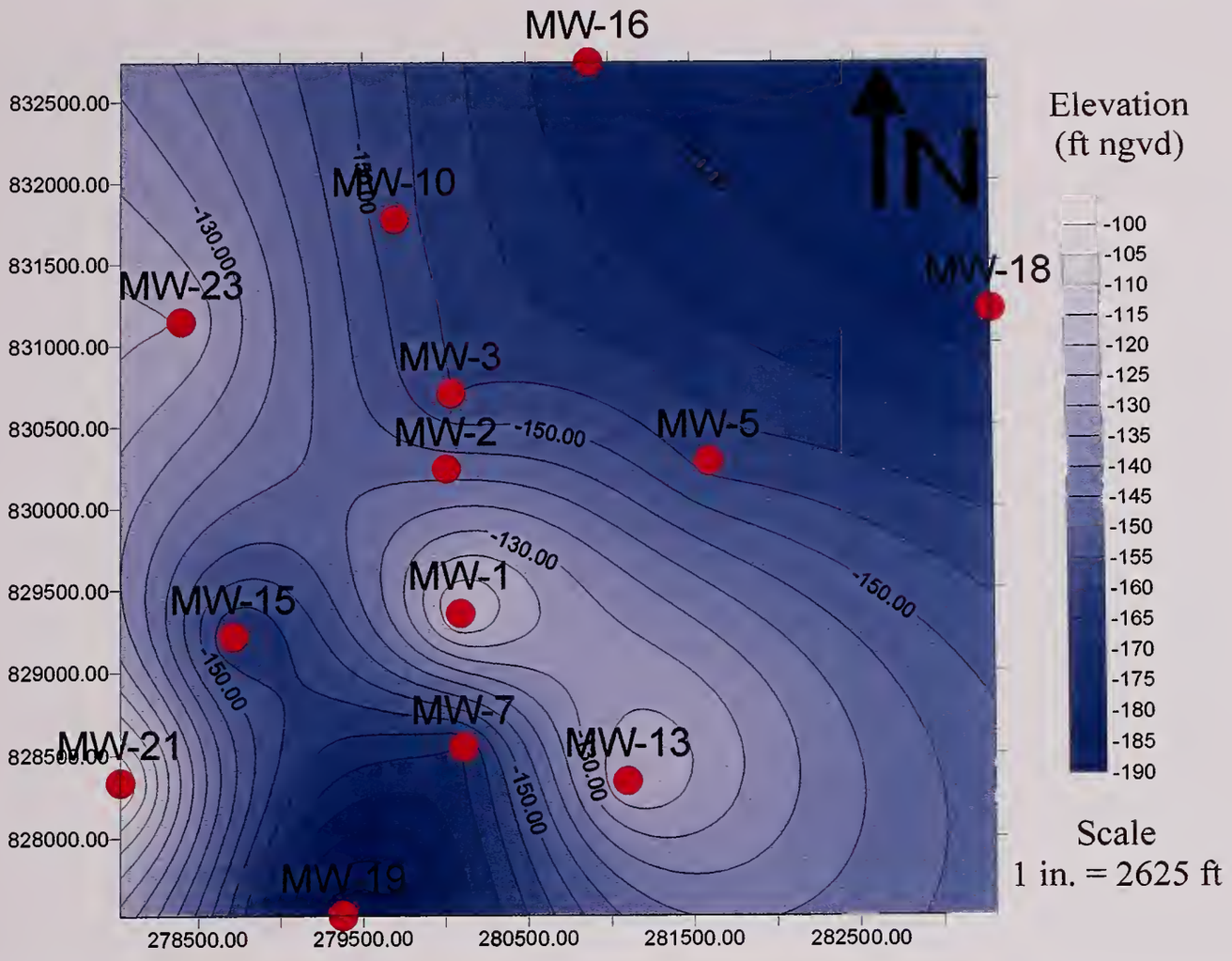
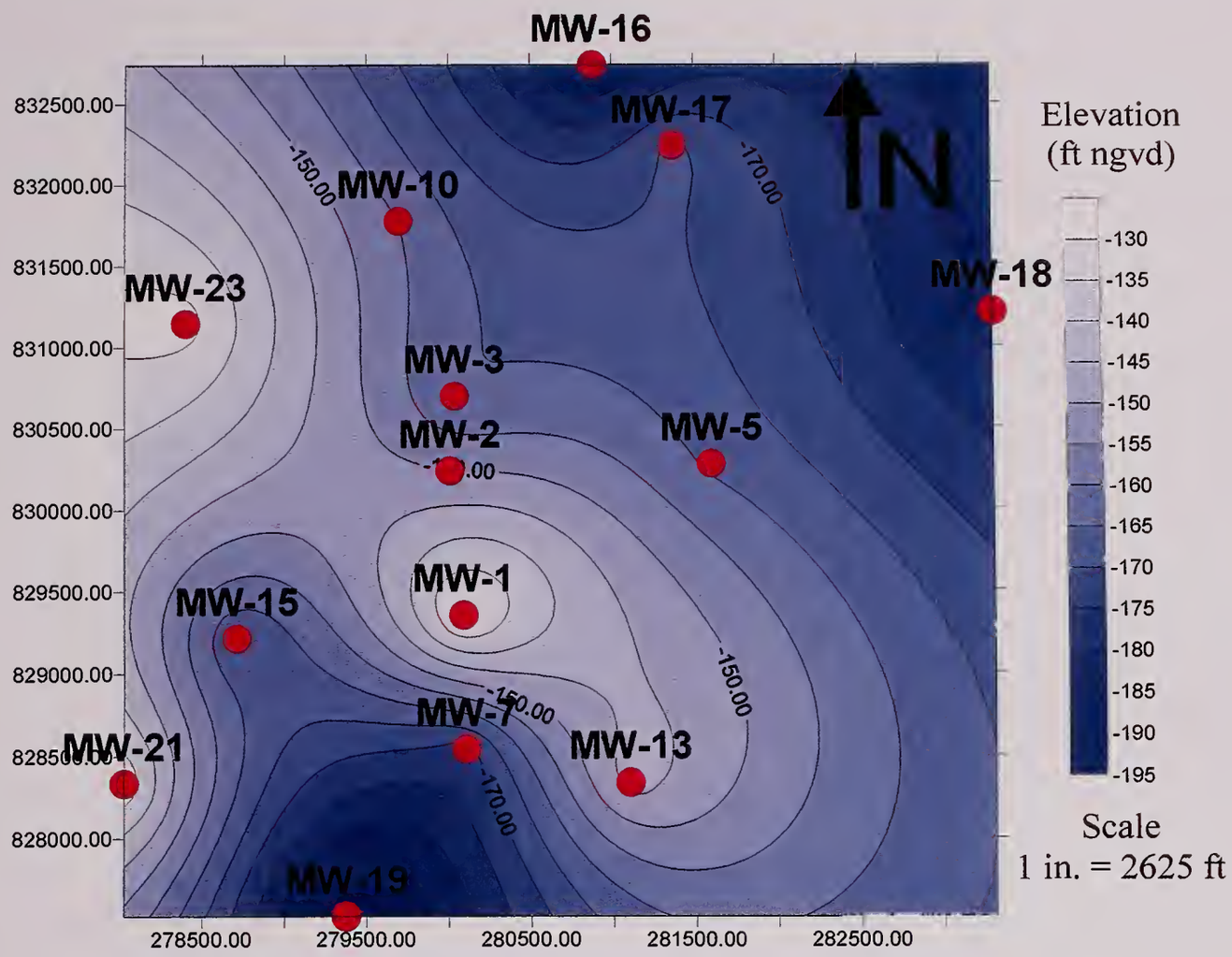


Figure H. Contour surface of bedrock in the IAGS.



A
WEST

A'
EAST

BHW212
90 FT. MSL

MW-22
236.18 FT. MSL

MW-15
175.04 FT. MSL

MW-25
179.95 FT. MSL

MW-1
187.03 FT. MSL

MW-27
190.25 FT. MSL

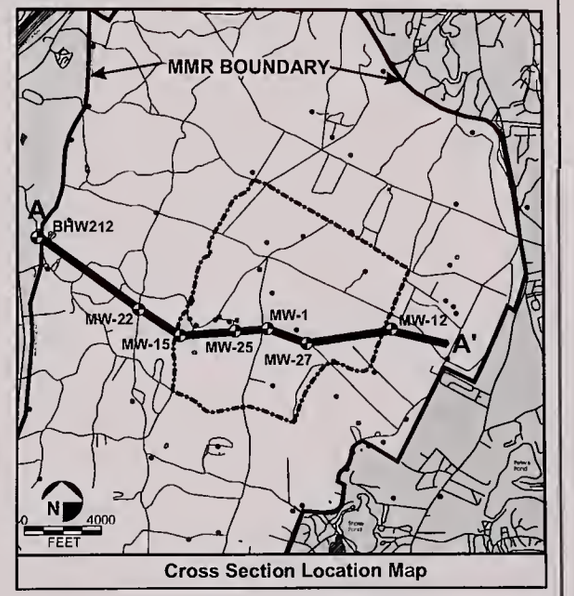
MW-12
171.69 FT. MSL

DEPTH (BGS)

ELEVATION IN FEET (MSL)

SEA LEVEL
0

?



Cross Section Location Map

LEGEND

Hydrologic Units

- VC Sand and Gravel
- VF Sand, Silt, and Clay
- Moraine
- Till
- Bedrock

Sedimentary Facies

- Topset
- Foreset
- Bottomset
- Lacustrine
- Water Table
- Well Screen

0 2000
HORIZONTAL SCALE:
1" = 2000'

VERTICAL SCALE: 1" = 50'

Geologic Cross Section A - A'
MMR Impact Area

FIGURE
I

SOREL\MMR\X-SEC\X-SECBB2.CDR

B
NORTH

BHW239
≈266 FT MSL

MW-10
207.91 FT. MSL

MW-2
≈ 202 FT. MSL

MW-1
187.03 FT. MSL

MW-7
176.55 FT. MSL

MW-28
168.97 FT. MSL

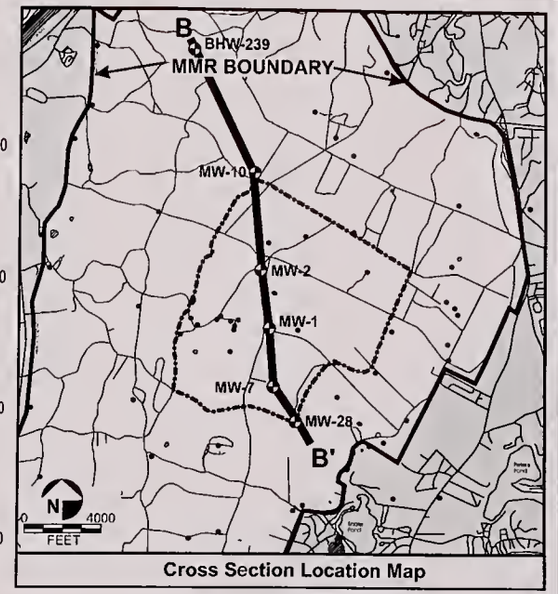
B'
SOUTH

ELEVATION IN FEET (MSL)

DEPTH (BGS)

SEA LEVEL

?



Cross Section Location Map

0 3200

HORIZONTAL SCALE:
1" = 3200'

VERTICAL SCALE: 1" = 60'

LEGEND

Hydrologic Units

- VC Sand and Gravel
- VF Sand, Silt, and Clay
- Moraine
- Till
- Bedrock

Sedimentary Facies

- Topset
- Foreset
- Bottomset
- Lacustrine
- Water Table
- Well Screen

Geologic Cross Section B - B'
MMR Impact Area

FIGURE
J

SOREL\MMR\X-SEC\X-SECBB2.CDR

C WEST

C' EAST

MW-21
233.93 FT. MSL

MW-8
176.39 FT. MSL

MW-1
187.03 FT. MSL

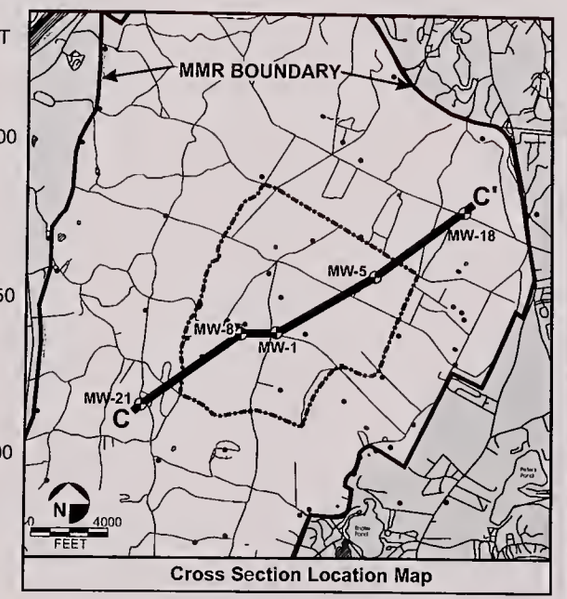
MW-5
184.00 FT. MSL

MW-18
102.78 FT. MSL

DEPTH (BGS)

ELEVATION IN FEET (MSL)

SEA LEVEL



Cross Section Location Map

LEGEND

Hydrologic Units

- VC Sand and Gravel
- VF Sand, Silt, and Clay
- Moraine
- Till
- Bedrock

Sedimentary Facies

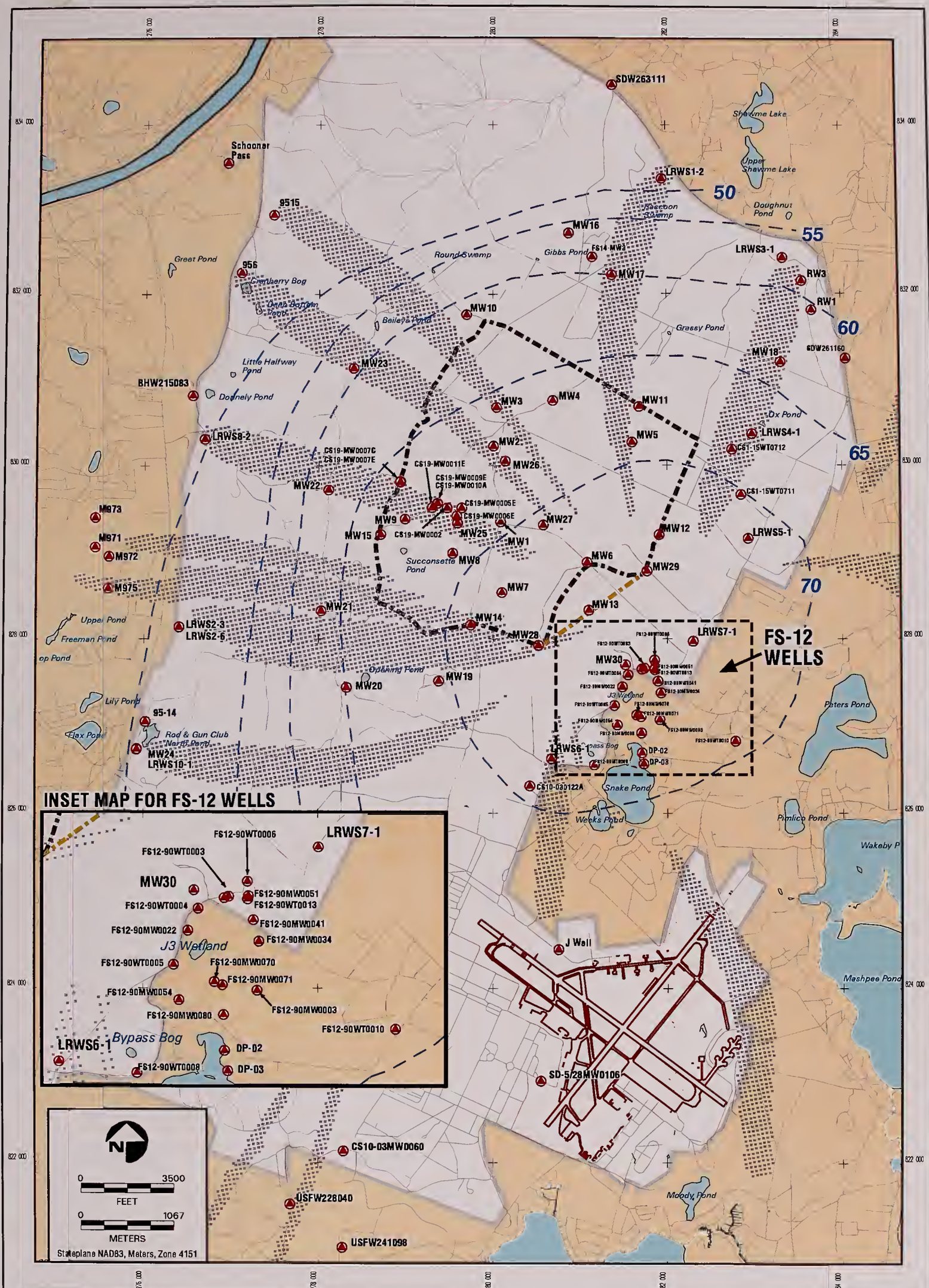
- Topset
- Foreset
- Bottomset
- Lacustrine
- Water Table
- Well Screen

0 2000
HORIZONTAL SCALE:
1" = 2000'
VERTICAL SCALE: 1" = 50'

Geologic Cross Section C - C'
MMR Impact Area

FIGURE
K

SOREL\MMR\X-SEC\X-SECCC CDR



OGDEN

Zones of Contribution

FIGURE

AG

/net/pulau/oahu/mmrdata/mmr/spatial/ogden/plots/figures/allsamp_11x17.aml

06/29/98

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 01A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

01I	(0.0-0.5)AA
ANALYTE	ug/kg
PETN	14000 J

01A	(0.0-0.5)AA
ANALYTE	ug/kg
1,3,5-TRINITROBENZEN	370 J
2-NITROTOLUENE	350 J
HMX	2700 NJ

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES
Area 1

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
1-1

/oahu/mmrdata/mmr/spatial/ogden/arcir/qd_mmr arul map MMR1166_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 01A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

MW3	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-16.0)CA	(20.0-22.0)DA	(30.0-34.0)EA	(40.0-44.0)FA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BARIUM	145	162					
BORON						3.1 J	
CADMIUM						0.07 J	
CALCIUM	447	857		286		1470	
CHROMIUM, TOTAL	11.5	12.4					
COBALT	4.3	4.5	4.5	4.5			
COPPER	24.3	27.5	5.4	7.3			
CYANIDE		1.1					
IRON	18900 J	19600 J					
MAGNESIUM			2160				
MANGANESE	3840	3940	108	270 J			
MERCURY		0.08 J		0.18 J			
MOLYBDENUM				0.42 J	0.48 J	0.67 J	
NICKEL		8.2					
NITRATE/NITRITE (AS	1.5	2.6					
NITROGEN, AMMONIA (A	30.3	47	3.9 J		2.8 J		3.98 J
PHOSPHORUS, TOTAL OR	538 J	694 J	148 J			151 J	
POTASSIUM	762	883	775	621			
SELENIUM	2.2	2.4	1.2 J				
ZINC	51.1	58.3	27.1	23.2			

01D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC		5.2
BARIUM	140	32.4
CALCIUM	627	304
CHROMIUM, TOTAL	11.3	
COBALT	3.7	4.7
COPPER	15.4 J	6.4
IRON	15300	15600
MAGNESIUM		1960
MANGANESE	2720	349
NITRATE/NITRITE (AS	0.21 J	0.09 J
NITROGEN, AMMONIA (A		7.7 J
PHOSPHORUS, TOTAL OR	1034 J	1080 J
POTASSIUM	889	1020
SELENIUM	1.7	
ZINC	36.3 J	26.9

01I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	1.1 J	
ARSENIC	4.0	
COBALT	1.8	
LEAD	25	
MANGANESE	25.2	
MOLYBDENUM	0.74	
NITROGEN, AMMONIA (A		9.4 J

01E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	175	40.6
BERYLLIUM		0.41
CALCIUM	1400	250
COBALT	2.5	
COPPER	15.3 J	8.3
LEAD	23.1	
MANGANESE	1860	348
NITRATE/NITRITE (AS	3.0	0.2 J
NITROGEN, AMMONIA (A	33.1 J	5.7 J
PHOSPHORUS, TOTAL OR	555 J	538 J
POTASSIUM	853	889
SELENIUM	1.7	
ZINC	28.4 J	

01K	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COPPER	5.5	
MOLYBDENUM		0.52 J
NITROGEN, AMMONIA (A		10 J

01J	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.0	
BERYLLIUM		0.32
MAGNESIUM		1670
MOLYBDENUM	0.77	
NITROGEN, AMMONIA (A		10 J
PHOSPHORUS, TOTAL OR	127 J	
SELENIUM	1.7 J	

01B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.5	
BARIUM	57.5	82.1
CALCIUM	249	302
CHROMIUM, TOTAL	13.5	17.8 J
COBALT	2.8	
COPPER	11.8 J	10
IRON	16800	16600
LEAD	31.8	
MAGNESIUM		2090
MANGANESE	848	803
NITRATE/NITRITE (AS	0.58	0.22 J
NITROGEN, AMMONIA (A		8.8 J
PHOSPHORUS, TOTAL OR	781 J	1750 J
POTASSIUM	758	1210
SELENIUM	2.1	
ZINC	27.3 J	39.5

01A	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ANTIMONY			1.0 J
BARIUM	86.3	84.7	94.5
CALCIUM	260	338	257
CHROMIUM, TOTAL	11.3	12.2	
COBALT	2.7	2.9	4.5
COPPER	12.1 J	12.3 J	12
IRON			15500
LEAD		18.8	9.8
MAGNESIUM		1030	
MANGANESE	1310	1290	841
NITRATE/NITRITE (AS	0.21	2.2	
NITROGEN, AMMONIA (A			10.4 J
PHOSPHORUS, TOTAL OR	617 J	564 J	784 J
POTASSIUM	722	952	985
SELENIUM	1.9	1.1 J	
ZINC	24.8 J	23.9 J	35.1

01H	(0.0-0.5)AA
ANALYTE	mg/kg
COBALT	3.4
COPPER	4.6 J
MAGNESIUM	1410
MANGANESE	95.1
POTASSIUM	758

01C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	14300	
ARSENIC	4.5	4.8
BARIUM	76.8	40.2
CALCIUM	511	271
CHROMIUM, TOTAL	16.3	17.1 J
COBALT	3.8	5.2
COPPER	13.5 J	8.6
IRON	18000	16400
LEAD	18.6	
MAGNESIUM	1440	2130
MANGANESE	1390	571
NICKEL		12.6
NITRATE/NITRITE (AS	3.8	
NITROGEN, AMMONIA (A		8.7 J
PHOSPHORUS, TOTAL OR	1050 J	1420 J
POTASSIUM	1330	1030
SELENIUM	1.5	
VANADIUM	29.3	25.3
ZINC	42.9 J	47.9

01F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC		5.0
BERYLLIUM		0.33
COBALT	2.8	4.9
COPPER	4.4 J	
MAGNESIUM		1870
MANGANESE	58.7	
POTASSIUM	419	682

01G	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ALUMINUM		13800	
ANTIMONY	0.8 J		
ARSENIC	4.0	5.0	5.7
CHROMIUM, TOTAL	12.8	15.1	
COBALT	2.7	3.2	
COPPER	4.4 J	4.7 J	
MAGNESIUM		1210	1900
MANGANESE	45.7	56	
PHOSPHORUS, TOTAL OR	125 J		
POTASSIUM	413	671	953
SELENIUM	0.89 J	0.98 J	
ZINC		17.7 J	

MW1 MW2 MW3 MW4

Wood Road Pocasset Road Turpentine Road Wood Road

279 500 279 600 279 700 279 800 279 900 280 000 280 100 280 200 280 300 280 400 280 500 280 600 280 700 280 800

830 200 830 100 831 000 830 900 830 800 830 700 830 600 830 500 830 400 830 300 830 200 830 100

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1956
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 1

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/08							

FIGURE
1-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR1266_edit

DRAFT

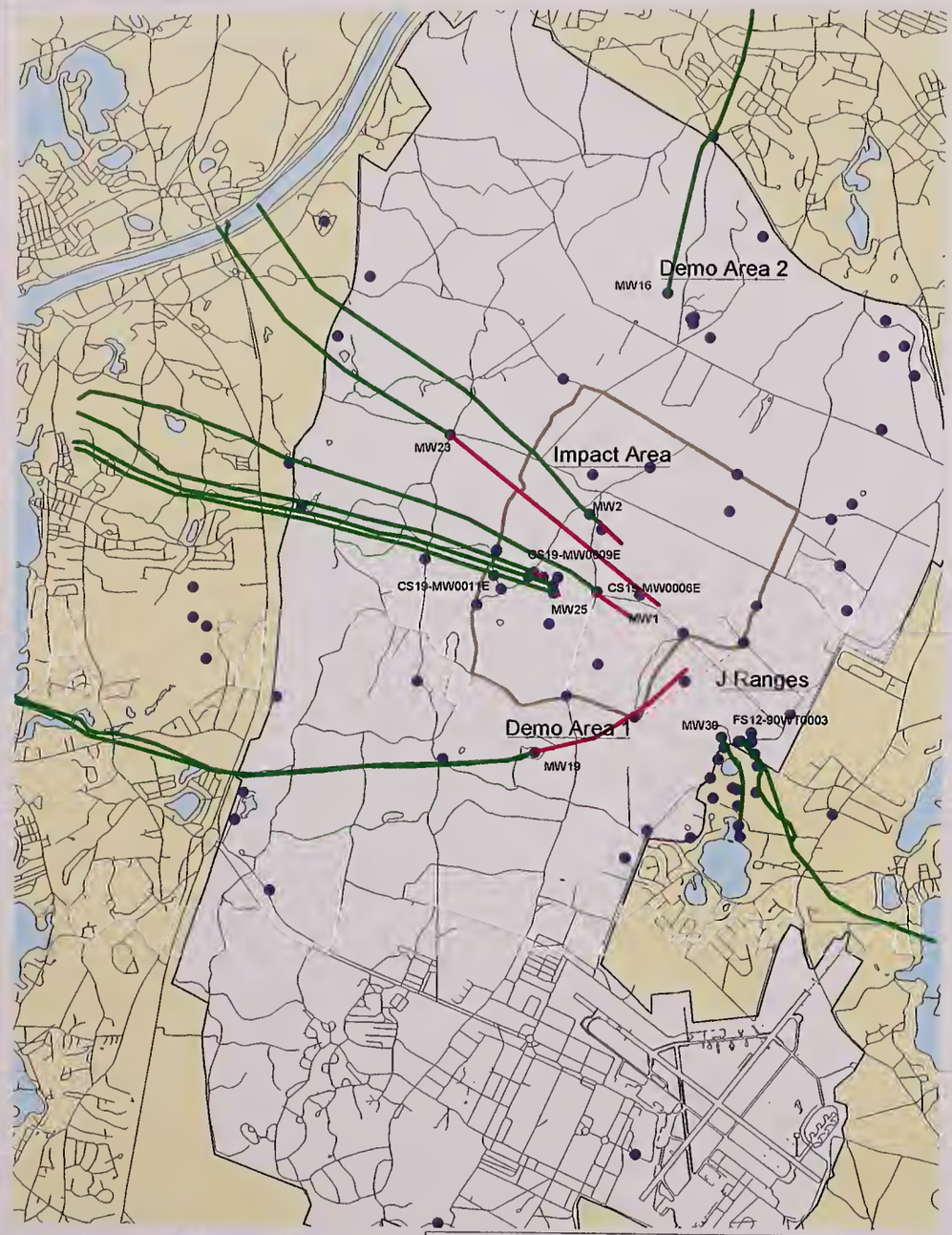
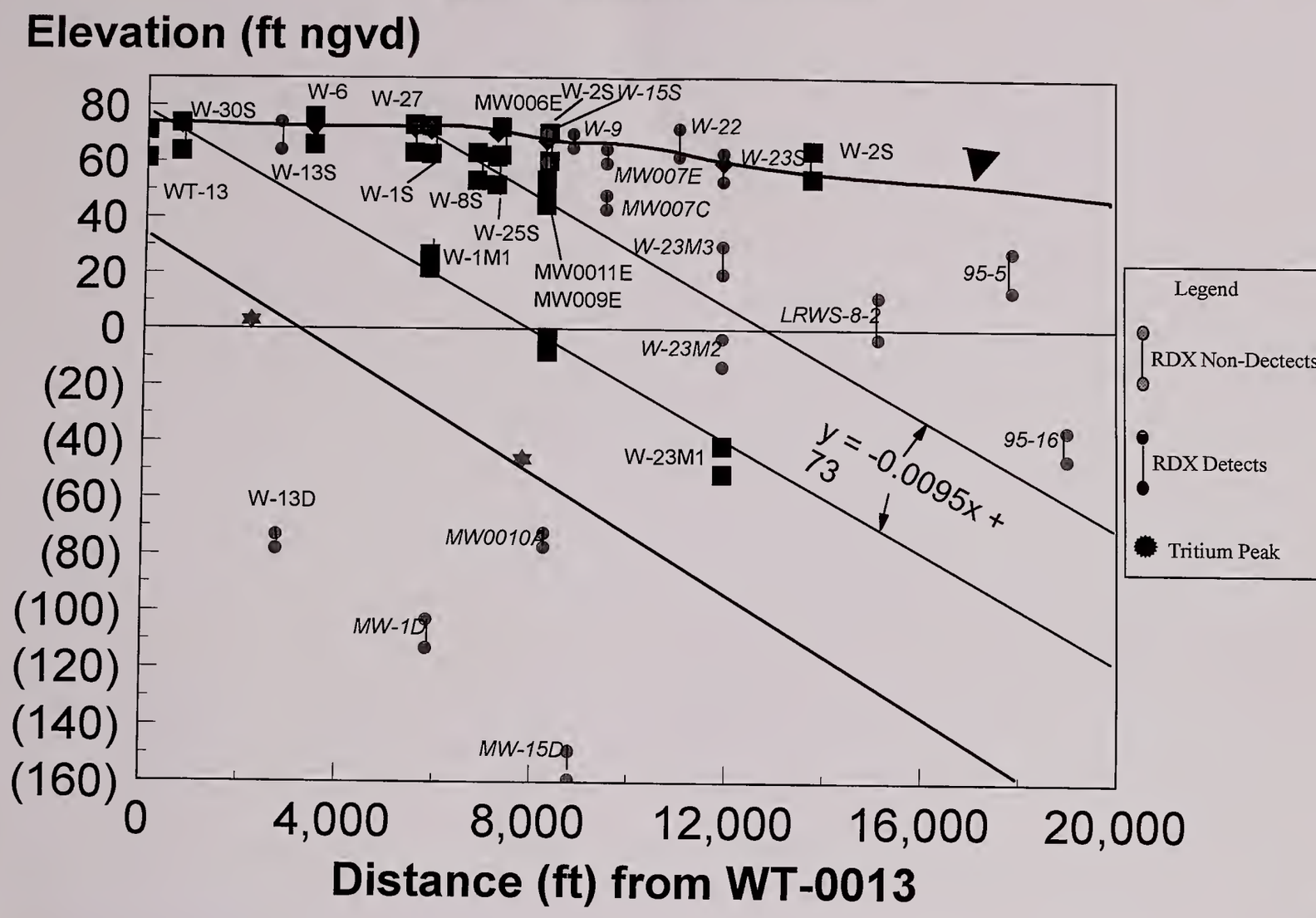


Figure AH: Forward and Reverse Particle Tracks For RDX and HMX Detections

Figure AI. Comparison of RDX Detects by Depth.



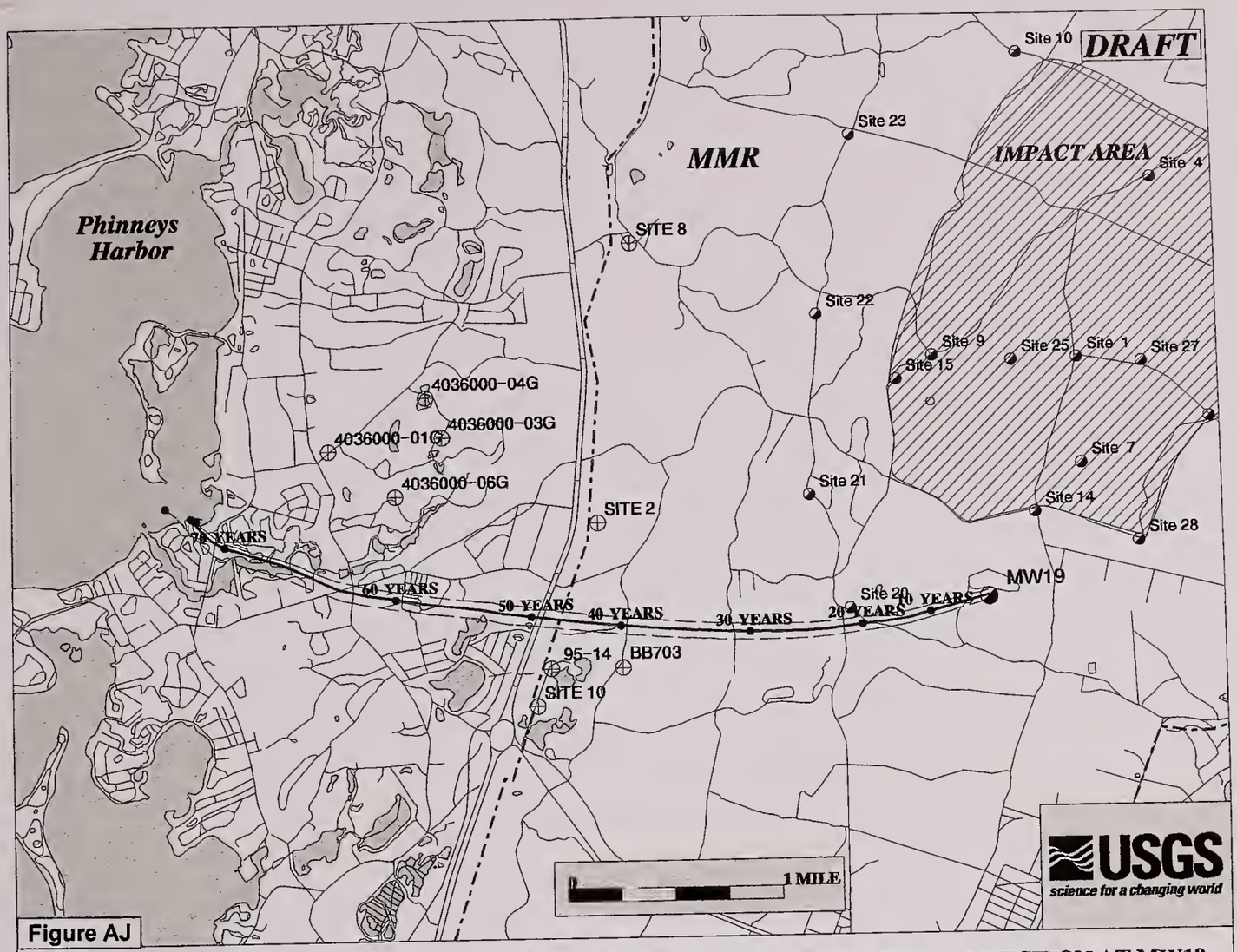
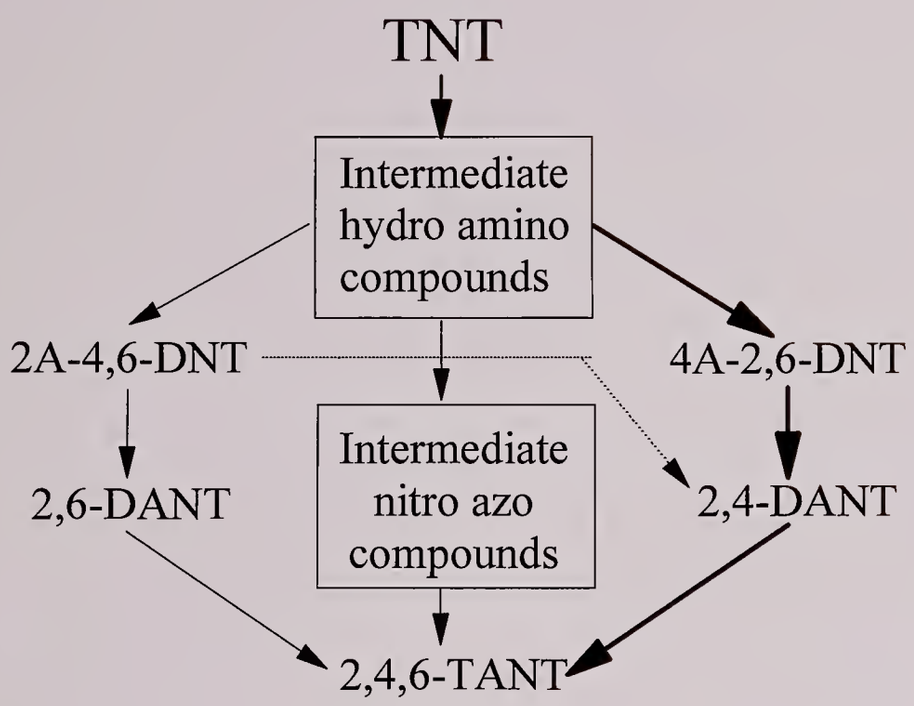


Figure AJ

PROJECTED PARTICLE PATHLINES AND ESTIMATED TRAVEL TIMES FROM RDX DETCTION AT MW19

Figure AK

Degradation Pathway for TNT



MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 01A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

01A	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	8.0 J

01C	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	12 J

01D	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	12 J

01E	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	14 J

01F	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	12 J

01G	(0.0-0.5 AA	(0.0-0.5 AO
ANALYTE	ug/kg	ug/kg
ACETONE	26 J	40 J

01H	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	5.0 J

01I	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	17 J

01J	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	14 J

01K	(0.0-0.5 AA
ANALYTE	ug/kg
ACETONE	15 J

MW2 MW3 MW4

Wood Road
Pocasset Road
Turpentine Road

279 500 279 600 279 700 279 800 279 900 280 000 280 100 280 200 280 300 280 400 280 500 280 600 280 700 280 800

830 100 830 200 830 300 830 400 830 500 830 600 830 700 830 800 830 900 831 000 831 100 831 200

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Mater Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 1

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
1-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR1366

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 01A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

01A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH		32 J
PHENOL	30 J	

01H	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	17 J
FLUORANTHENE	38 J
PYRENE	46 J

01G	(0.0-0.5)AD
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	28 J

MW1 MW2 MW3 MW4

Wood Road

Pocasset Road

Turpentine Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 mater contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 1

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
1-4

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR1466_edit

DRAFT

MW3	(0.0-0.5)AA	(10.0-18.0)CA
ANALYTE	ug/kg	ug/kg
MCPP		11000 NJ
PENTACHLOROPHENOL	7.6 J	

01D	(0.0-0.5)AA
ANALYTE	ug/kg
DICAMBA	7.9 J

01A	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
DICAMBA	6.9 J	7.8 J

01E	(0.0-0.5)AA
ANALYTE	ug/kg
DICAMBA	9.6 J

MW3 MW4 MW2

01A 01B 01C 01D 01E 01F 01G 01H 01K

Wood Road Pocasset Road Wood Road Turpentine Road

279 500 279 600 279 700 279 800 279 900 280 000 280 100 280 200 280 300 280 400 280 500 280 600 280 700 280 800

830 200 830 100 830 000 829 900 829 800 829 700 829 600 829 500 829 400 829 300 829 200 829 100

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 01A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 1

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
1-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR1566

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 02H — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

02L	(0.0-0.5)AA
ANALYTE	ug/kg
PETN	7000 NJ

02H	(0.0-0.5)AA
ANALYTE	ug/kg
PICRIC ACID	360 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES
Area 2

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
2-1

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR2166_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 02A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 2

N

0 450
0 FEET 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
2-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR2266_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 02D — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

MW2	(0.0-0.5)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	2.0 J
TCE	7.0 J

02D	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	18 J

02E	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	5.0 J

MW26	(10.0-12.0)CA
ANALYTE	ug/kg
ACETONE	7.0 J

02L	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	18 J

02N	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	48 J	8.0 J

02I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		8.0 J
TCE	4.0 J	

02J	(0.0-0.5)AA
ANALYTE	ug/kg
EDB	190 J
MTBE	190

02M	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		19 J
CHLOROFORM	1.0 J	
METHYLENE CHLORIDE	1.0 J	
TCE	1.0 J	
TOLUENE	1.0 J	

02K	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	8.0 J

Pocasset Sandwich Road

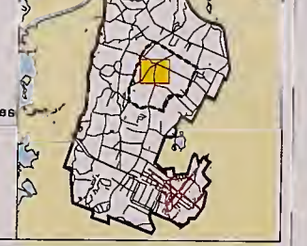
Turnpike Road

CS19-MW0009E
CS19-MW0010A
CS19-MW0011E
CS19-MW0002
CS19-MW0005E
CS19-MW0006E

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 2

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE **2-3**

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR2366_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 02A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

MW2	(10.0-14.0)CA
ANALYTE	ug/kg
NAPHTHALENE	29 J

02A	(0.0-0.6)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	77 J
DI-N-BUTYL PHTHALATE	34 J

02B	(0.0-0.6)AA
ANALYTE	ug/kg
PYRENE	29 J

02E	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	37 J

02D	(0.0-0.5)AA
ANALYTE	ug/kg
PYRENE	22 J

MW26	(0.0-0.6)AA	(0.0-0.6)AD	(10.0-12.0)CA
ANALYTE	ug/kg	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH			250 J
DIETHYL PHTHALATE	19 J	22 J	

02F	(0.0-0.5)AA
ANALYTE	ug/kg
CHRYSENE	24 J
FLUORANTHENE	38 J
PYRENE	26 J

02M	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	29 J
FLUORANTHENE	44 J
PYRENE	38 J

02I	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	48 J

Pocasset Sandy 2D Road

Turpentine Road

MW2

MW26

CS19-MW0009E
CS19-MW0010A
CS19-MW0011E
CS19-MW0002
CS19-MW0005E
CS19-MW0006E

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 2

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
2-4

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR2466_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 02A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

MW2	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
DDE (1,1-BIS(CHLOROP	14	12

02A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
DDE (1,1-BIS(CHLOROP	14	2.8 J
DDT (1,1-BIS(CHLOROP		5.4

02B	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	12

02C	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	9.3

02D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
DDE (1,1-BIS(CHLOROP	12	2.9 J
DDT (1,1-BIS(CHLOROP		4.5

02G	(0.0-0.5)AA
ANALYTE	ug/kg
PICLORAM	6.3 NJ

02M	(1.5-2.0)BA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.2 J
DDT (1,1-BIS(CHLOROP	6.0

02K	(1.5-2.0)BA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	8.3
DDT (1,1-BIS(CHLOROP	12

Focasset Sandwich Road
Turpentine Road
MW2
MW26
CS19-MW0009E
CS19-MW0010A
CS19-MW0011E
CS19-MW0002
CS19-MW0005E
CS19-MW0006E

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 2

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
2-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR2566

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 03A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTM)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 3

N

0 450
0 FEET 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
3-2

DRAFT

/oshu/mmrdata/mmr/spatial/ogden/arcs/qd_mmr.aml map MMR3266_edit

MW1	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-14.0)CA	(20.0-22.0)DA	(40.0-42.0)FA	(60.0-64.0)HA	(70.0-72.0)IA	(80.0-82.0)KA	(120.0-122.0)NA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CALCIUM				207	248					
COBALT	1.9									
COPPER	11.2	8.1						5.9		
MAGNESIUM			1960	1780						
MANGANESE	52.6	32.4		157	212					
MERCURY		0.16 J			0.67	0.07 J	0.06 J	5.4		
NITRATE/NITRITE (AS	0.28	0.21		0.06						0.06
POTASSIUM	309		977	751	1030					
SELENIUM		0.8 J						0.52 J	0.57 J	
ZINC	17.4									

03A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	21800	
ANTIMONY		0.96 J
ARSENIC	5.3	
BARIUM	17.1	
CADMIUM	2.0	
CALCIUM		213
CHROMIUM, TOTAL	18.8	
COBALT	3.7	4.5
COPPER	405	8.1 J
IRON	16000	
LEAD	62.3	10.2
MAGNESIUM	1580	1750
MANGANESE	85.9	
MERCURY		0.09
NICKEL	8.1 J	
NITRATE/NITRITE (AS		0.05 J
NITROGEN, AMMONIA (A		0.3 J
POTASSIUM	767	684
SELENIUM	1.6 J	1.1 J
ZINC	57.3	24.1

03B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	14100	
ANTIMONY		0.74 J
ARSENIC	4.6	
CHROMIUM, TOTAL	18.9	
COBALT	3.7	4.6
COPPER	333 J	8.1 J
IRON	17700	
LEAD	41	
MAGNESIUM	1650	2080
MANGANESE	98.7	
MERCURY		0.07
NICKEL	11.9	
NITRATE/NITRITE (AS	0.22	0.07
NITROGEN, AMMONIA (A		3.7 J
POTASSIUM	707	839
SELENIUM	1.3 J	1.0 J
ZINC	63.5	28.5

03C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM		19800
ANTIMONY		0.65 J
ARSENIC	4.3	6.8
BERYLLIUM		0.38
CALCIUM		191
CHROMIUM, TOTAL	13.4	22.3
COBALT	2.8	5.5
COPPER	20 J	8.2 J
IRON		20400
LEAD	33	11
MAGNESIUM	1240	2480
MANGANESE	67.6	
MERCURY		0.08
NICKEL		10.5
NITROGEN, AMMONIA (A		4.2 J
POTASSIUM	586	940
SELENIUM	1.0	1.6 J
VANADIUM		31.3
ZINC	28.6	29.2

03D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	1.9 J	
COPPER	27.7 J	
LEAD	26.4	
MANGANESE	54.5	
MERCURY		0.06
NITRATE/NITRITE (AS	1.0 J	
POTASSIUM	410	
SELENIUM	1.3 J	
ZINC	25.5 J	

03E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	14900	16800
ARSENIC	4.7	7.2
BERYLLIUM		0.63
CALCIUM		255
CHROMIUM, TOTAL	16.3	23.7
COBALT	3.7	9.0
COPPER	17.5 J	7.8 J
IRON	15400	20600
LEAD		11.2
MAGNESIUM	1650	3360
MANGANESE	72.2	171
MERCURY		0.13
NICKEL		13.7
NITRATE/NITRITE (AS		0.06
POTASSIUM	599	1390
SELENIUM	1.6 J	
VANADIUM		32
ZINC	27.3	31.1

03F	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ANTIMONY			0.92 J
ARSENIC		4.2	
BERYLLIUM			0.33
CALCIUM	256		
CHROMIUM, TOTAL	12.7	13.4	
COBALT	2.6 J	2.2 J	
COPPER	43.5 J	42.4 J	5.2 J
IRON	15000		
MAGNESIUM	1140		1660
MANGANESE	72	61.2	
MERCURY			0.08
NITRATE/NITRITE (AS	0.36	0.38	0.06
NITROGEN, AMMONIA (A			3.0 J
POTASSIUM	422	531	894
SELENIUM	1.2 J	1.6 J	
ZINC	37.2	36.4	

03G	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	13500	
ARSENIC	4.4	
BERYLLIUM		0.31
CHROMIUM, TOTAL	15.6	
COBALT	4.1	5.1
COPPER	11.3 J	7.7 J
IRON	15600	
MAGNESIUM	1680	1760
MANGANESE	84.5	109
MERCURY		0.09
POTASSIUM	713	711
SELENIUM	1.2	
ZINC	29.8	

03H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CADMIUM	0.22	
COPPER	21.4 J	
MANGANESE	32.3	
NITRATE/NITRITE (AS		0.07
POTASSIUM	306	
ZINC	23.1 J	

03I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	13100	
ANTIMONY		1.7
ARSENIC	4.6 J	5.8
BORON		5.4
CHROMIUM, TOTAL	17.2	
COBALT	3.7	
COPPER	33.8 J	5.8
IRON	15600	
MAGNESIUM	1270	
MANGANESE	68.1	
NITRATE/NITRITE (AS		0.06
NITROGEN, AMMONIA (A		2.8 J
POTASSIUM	553	
SELENIUM		1.1 J
ZINC	32.8 J	

03J	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CADMIUM	0.14 J	
COBALT	2.3 J	
COPPER	31.4 J	
LEAD		10.1
MANGANESE	86.4	
MERCURY		0.12
NITRATE/NITRITE (AS	1.8	1.8
NITROGEN, AMMONIA (A		18.9 J
PHOSPHORUS, TOTAL OR	123 J	
POTASSIUM	415	
[illegible]	1.8 J	1.4
ZINC	30.9	

03K	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	13300	
ARSENIC	4.2	
BERYLLIUM		0.32
CHROMIUM, TOTAL	16	
COBALT	3.4	5.1
COPPER	21.3 J	
MAGNESIUM	1520	1950
MANGANESE	71.3	
MERCURY		0.07
POTASSIUM	520	779
SELENIUM	1.6 J	
ZINC	30.5	

03L	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	15100	
ARSENIC	5.1	
BERYLLIUM	0.32	0.57
CALCIUM	288	
CHROMIUM, TOTAL	17.4	19.3
COBALT	4.3	8.7
COPPER	29.2 J	9.6 J
IRON	16900	18900
MAGNESIUM	1670	2760
MANGANESE	84.6	105
MERCURY		0.07
NICKEL	9.2 J	12.1
POTASSIUM	696	724
SELENIUM	1.5 J	1.4
VANADIUM		25.2
ZINC	38.7	25

03M	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CADMIUM	3.6	
COBALT	2.0 J	
COPPER	141	
LEAD	24.8	9.8
MANGANESE	99.8	
MERCURY		0.09
NITRATE/NITRITE (AS	1.1	0.53
NITROGEN, AMMONIA (A		22.8 J
POTASSIUM	334	
SELENIUM	1.1 J	1.3
ZINC	176	

03N	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	16600	16200
ARSENIC	4.7	8.0
BERYLLIUM		0.45
CALCIUM		202
CHROMIUM, TOTAL	17.4	20.6
COBALT	3.2	6.1
COPPER	26.5 J	5.9 J
IRON	16800	17800
MAGNESIUM	1420	2780
MANGANESE	58.1	114
MERCURY		0.11
NICKEL		10.7
POTASSIUM	511	1090
SELENIUM	1.7 J	
VANADIUM		25.9
ZINC	38.2	24.8

03O	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg
BORON			3.7 J	3.5 J
CHROMIUM, TOTAL	11.7	10.3		
COBALT	4.1	3.1 J	5.2	
COPPER	27.6 J	35.1 J		
CYANIDE	1.8			
MAGNESIUM	1190			
MANGANESE	107	77	246	136
MOLYBDENUM			0.22 J	0.25 J
NITROGEN, AMMONIA (A			3.0 J	5.1 J
PHOSPHORUS, TOTAL OR	134 J			146 J
POTASSIUM	596	457		
SELENIUM	1.2 J			
SILVER	0.47 J	0.67 J		
ZINC	32.5 J	27.2 J		

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 03I — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

03O	(0.0-0.5)AA
ANALYTE	ug/Kg
TCE	4.0 J

03I	(0.0-0.6)AA	(1.6-2.0)BA
ANALYTE	ug/kg	ug/kg
METHYLENE CHLORIDE		1.0 J
TCE	1.0 J	

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 3

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
3-3

/oahu/mmrdata/mmr/spatial/ogden/arcs/qd_mmr aml map MMR3366_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 03E Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

03K	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	22 J

03O	(0.0-0.5)AD
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	52 J

MW1	(0.0-0.5)AA	(0.0-0.5)AD	(10.0-14.0)CA
ANALYTE	ug/kg	ug/kg	ug/kg
BENZO(A)ANTHRACENE		47 J	
BENZO(B)FLUORANTHENE		86 J	
BENZO(K)FLUORANTHENE		85 J	
BIS(2-ETHYLHEXYL) PH		31 J	29 J
CHRYSENE		89 J	
DI-N-BUTYL PHTHALATE			21 J
DIETHYL PHTHALATE	27 J		26 J
FLUORANTHENE		61 J	
PYRENE		53 J	

03E	(0.0-0.5)AA
ANALYTE	ug/kg
BENZO(A)ANTHRACENE	54 J
BENZO(A)PYRENE	55 J
BENZO(B)FLUORANTHENE	140 J
BENZO(G,H,I)PERYLENE	31 J
BENZO(K)FLUORANTHENE	110 J
CHRYSENE	140 J
FLUORANTHENE	58 J
INDENO(1,2,3-C,D)PYR	35 J
PYRENE	52 J

03F	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
BENZO(A)ANTHRACENE	88 J	260 J
BENZO(A)PYRENE	78 J	180 J
BENZO(B)FLUORANTHENE	180 J	340 J
BENZO(G,H,I)PERYLENE	39 J	76 J
BENZO(K)FLUORANTHENE	130 J	290 J
BIS(2-ETHYLHEXYL) PH		560
CHRYSENE	190 J	370 J
DIBENZ(A,H)ANTHRACEN	23 J	46 J
FLUORANTHENE	92 J	400
INDENO(1,2,3-C,D)PYR	47 J	89 J
PYRENE	81 J	270 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 3

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
3-4

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR3466_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 03A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1966
All sample depth measurements are in feet

03A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BENTAZON	360 NJ	
DDE (1,1-BIS(CHLOROP		4.9 J
DDT (1,1-BIS(CHLOROP		3.3 J
MCPA		6200 J

03J	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
2,4,5-T (TRICHLOROPH	6.6 NJ	
MCPA		15000 NJ

03K	(0.0-0.5)AA
ANALYTE	ug/kg
ALPHA BHC (ALPHA HEX	1.7 J

03L	(0.0-0.5)AA
ANALYTE	ug/kg
ALPHA BHC (ALPHA HEX	2.6

03M	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	17 NJ
ALPHA BHC (ALPHA HEX	4.0
BETA BHC (BETA HEXAC	1.1 J
CHLORAMBEN	66 NJ
DDE (1,1-BIS(CHLOROP	8.6

03N	(0.0-0.5)AA
ANALYTE	ug/kg
ALPHA BHC (ALPHA HEX	5.5
DDE (1,1-BIS(CHLOROP	8.4
DELTA BHC (DELTA HEX	1.3 J
GAMMA BHC (LINDANE)	2.1

03G	(0.0-0.5)AA
ANALYTE	ug/kg
DICAMBA	11 NJ

03F	(0.0-0.5)AD
ANALYTE	ug/kg
ALPHA ENDOSULFAN	3.1 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:24000 digital black & white aerial photos (nonrectified);
Resolution: 2.13 meters; Date Flown: February 1966
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 3

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
3-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR3566

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 04A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

MW27	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-14.0)CA	(10.0-14.0)CD	(22.0-24.0)DA	(30.0-32.0)EA	(110.0-112.0)VA	(120.0-122.0)NA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CALCIUM				396		301	300		
COPPER				8.3			6.7		
MAGNESIUM			1790						
MANGANESE							188 J		
MERCURY									0.07 J
NITROGEN, AMMONIA (A					5.2 J			1.4	1.1
PHOSPHORUS, TOTAL OR							171 J		
POTASSIUM							610		
SELENIUM	0.74 J	0.96							

04B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.84 J	
ARSENIC		4.8 J
BERYLLIUM		0.31
CHROMIUM, TOTAL	11.5	
COBALT	1.7	5.3
COPPER	16.1	6.1
IRON	15900 J	
MAGNESIUM		2170
MANGANESE	32.5	
MOLYBDENUM		0.65 J
NITROGEN, AMMONIA (A	40 J	
PHOSPHORUS, TOTAL OR	145 J	
POTASSIUM	473	
SELENIUM	1.6 J	

04B	(0.0-0.5)AA
ANALYTE	mg/kg
COBALT	2.0
COPPER	4.3
MANGANESE	58.8
POTASSIUM	358

04C	(0.0-0.5)AA
ANALYTE	mg/kg
COBALT	2.5
COPPER	9.8
MANGANESE	58.7
POTASSIUM	491

04D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	2.2	
COPPER	11.8	8.1
MANGANESE	58.4	
NITRATE/NITRITE (AS		0.05
NITROGEN, AMMONIA (A		3.8 J
POTASSIUM	430	
SELENIUM		1.1 J
THALLIUM		1.3 J

04A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	2.2	
MANGANEBE	63.5	
NITRATE/NITRITE (AS	0.28	0.08
POTASSIUM	373	
SILVER	0.22 J	

04F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	15200	
ANTIMONY	0.84 J	
ARSENIC	4.8	
BARIUM	30	
CADMIUM	0.72	
CHROMIUM, TOTAL	20.8	
COBALT	3.1	
COPPER	20	
IRON	16200	
LEAD	30.5	
MAGNESIUM	1250	
MANGANESE	73.4	
MOLYBDENUM		0.32 J
NICKEL	10.8	
POTASSIUM	626	
ZINC	43.6	

04E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	3.1	
COPPER	4.5	
MANGANESE	61.9	
POTASSIUM	488	
SELENIUM		1.1 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 4

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
4-2

DRAFT

/oahu/mmr/data/mmr/spatial/cgdev/arcls/qd_mmr/aml map MMR4286_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 04B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

MW27	(0.0-0.5)AD	(10.0-14.0)CA
ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH		36 J
DIETHYL PHTHALATE	40 J	

04B	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	19 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 4

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
4-4

/cobu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR4486_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 04B — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

MW27	(10.0-14.0)CA
ANALYTE	ug/kg
ALPHA BHC (ALPHA HEX	1.4 J

04B	(0.0-0.5)AA
ANALYTE	ug/Kg
2,4,5-T (TRICHLOROPH	24
3,5-DICHLOROBENZOIC	140 J

04C	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	9.4 J

04D	(0.0-0.5)AA
ANALYTE	ug/kg
BENTAZON	190

04E	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	8.7 J
3,5-DICHLOROBENZOIC	51 NJ

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 4

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
4-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR4586

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Soil Borings/Groundwater Wells
- G5D — Location Identifier
- ug/kg — Micrograms Per Kilogram
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES
Area 5A

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
5A-1

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR51186_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Soil Borings/Groundwater Wells
- 05H Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 5A

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
5A-2

DRAFT

05Q	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	13800 J	
ARSENIC	3.9 J	
CHROMIUM, TOTAL	15.1	
COBALT	2.3	
COPPER		6.0
MAGNESIUM	1190	1780
MANGANESE	45.6 J	
MOLYBDENUM	1.3	
POTASSIUM	303	723
ZINC	21.6 J	

05L	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	3.2	
COPPER	4.0	7.6
MANGANESE	69.7 J	
MOLYBDENUM	0.47 J	0.29 J
NITRATE/NITRITE (AS		0.05
POTASSIUM	335	

05K	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	1.3 J	
BARIUM	77.7	
CALCIUM	3150	236
CHROMIUM, TOTAL	153 J	
COBALT	15.4	
COPPER	259 J	10.9
IRON	23300 J	
MAGNESIUM	10400	
MANGANESE	248 J	
MOLYBDENUM	16.1 J	0.55 J
NICKEL	176 J	
PHOSPHORUS, TOTAL OR	706 J	
POTASSIUM	2470	
THALLIUM	1.5 J	
VANADIUM	34.4	
ZINC	68.4	

05M	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COPPER	4.1	
MANGANESE	41.9 J	
MOLYBDENUM		0.61

05N	(0.0-0.5)AA
ANALYTE	mg/kg
CHROMIUM, TOTAL	10.5
COBALT	3.5
COPPER	13.6
CYANIDE	0.83
MAGNESIUM	1180
MANGANESE	59 BJ
MOLYBDENUM	0.67
POTASSIUM	352
ZINC	22.1 J

05I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	2.5	
COPPER	3.5 J	
MANGANESE	88.3 J	
MOLYBDENUM	0.47 J	0.56 J
NITROGEN, AMMONIA (A		12.1 J

05B	(0.0-0.5)AA
ANALYTE	mg/kg
CHROMIUM, TOTAL	13.2
COBALT	3.5
COPPER	14.5
MANGANESE	89.6
NICKEL	44.1
NITRATE/NITRITE (AS	8.1
POTASSIUM	350

05C	(0.0-0.5)AA
ANALYTE	mg/kg
BARIUM	55.6
CADMIUM	0.88
COPPER	32.5
LEAD	20
MANGANESE	122
POTASSIUM	275

05J	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	2.9	
COPPER	4.8 J	
LEAD	23.7	11.3
MANGANESE	85.8 J	
MOLYBDENUM		0.79
NITROGEN, AMMONIA (A		7.5 J

05A	(0.0-0.5)AA
ANALYTE	mg/kg
ANTIMONY	1.8 J
COBALT	2.8
COPPER	7.5
LEAD	229 J
MAGNESIUM	1050
MANGANESE	55 BJ
MOLYBDENUM	0.71
POTASSIUM	280

05H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MANGANESE	40.9 J	
NITRATE/NITRITE (AS		0.07
NITROGEN, AMMONIA (A		8.5 J

05E	(0.0-0.5)AA
ANALYTE	mg/kg
MANGANESE	40.3

05D	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	24600
ANTIMONY	3.5
ARSENIC	5.8
BARIUM	1140
CADMIUM	33.3
CALCIUM	288
CHROMIUM, TOTAL	38.8
COBALT	7.7
COPPER	2350
IRON	49400
LEAD	616
MAGNESIUM	2720
MANGANESE	369
MOLYBDENUM	29.5
NICKEL	29
POTASSIUM	575
SILVER	5.5
SODIUM	67.3 J
VANADIUM	29.6
ZINC	511 J

MW13	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-12.0)CA	(20.0-22.0)DA	(30.0-34.0)EA	(40.0-42.0)FA	(50.0-52.0)GA	(60.0-62.0)HA	(70.0-72.0)IA	(80.0-82.0)JA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ALUMINUM		14500									
BARIUM	18.2		0.32								
BERYLLIUM											
CALCIUM	517					370	253	545	713	333	
CHROMIUM, TOTAL		13.5	18.2								
COBALT	1.8	1.8	4.7								
COPPER	5.3		6.6						6.8		
IRON		15200									
LEAD	21.4 J										
MAGNESIUM			2470								
MANGANESE	40.5	29.6				118		110	108		
NITRATE/NITRITE (AS				0.78						0.11	
NITROGEN, AMMONIA (A				3.1 J	3.1 J	2.3 J	3.0 J	3.8 J	3.0 J	2.9 J	3.1 J
POTASSIUM	457	459	671					800	642		
SELENIUM	1.1 J										
SILVER											
SODIUM											0.31 J
ZINC	17.7 J		24.6 J								114 J

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR512B6_edit

G5C	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	21 J

G5B	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	260 J

MW13	(0.0-0.5)AD
ANALYTE	ug/kg
TOLUENE	4.0 J

MW6
MW12
MW29
MW13
MW28
Chadwick Road
Station Road
Indian Trail Road
Tank Alley
05
05M
05L
05K
05N
G5C
G5D
05J
G5B
C5A
C5P
05O
60
95
85

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Soil Borings/Groundwater Wells
- G5B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 5A

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
5A-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/aml s/qd_mmr.aml map MMR51386

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Soil Borings/Groundwater Wells
- 05K Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

G5C	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	51 J

05Q	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	31 J

05K	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	87 J	
DI-N-BUTYL PHTHALATE	44 J	26 J

MW13	(0.0-0.5)AD
ANALYTE	ug/kg
FLUORANTHENE	32 J

G5D	(0.0-0.5)AA
ANALYTE	ug/kg
2-METHYLNAPHTHALENE	84 J
BIS(2-ETHYLHEXYL) PH	3600
DI-N-BUTYL PHTHALATE	80 J
DI-N-OCTYLPHTHALATE	44 J
NAPHTHALENE	51 J
PYRENE	42 J

C5A	(0.0-0.5)AA
ANALYTE	ug/kg
ANTHRACENE	86 J
BENZO(A)ANTHRACENE	230 J
BENZO(A)PYRENE	97 J
BENZO(B)FLUORANTHENE	570
BENZO(G,H,I)PERYLENE	110 J
BENZO(K)FLUORANTHENE	490
CARBAZOLE	21 J
CHRYSENE	1000
DIBENZ(A,H)ANTHRACEN	48 J
FLUORANTHENE	250 J
INDENO(1,2,3-C,D)PYR	110 J
PHENANTHRENE	35 J
PYRENE	380 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 5A

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
5A-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR51486

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Soil Borings/Groundwater Wells
- C5A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

G5D	(0.0-0.5)AA
ANALYTE	ug/kg
ALPHA ENDOSULFAN	1.4 J
ENDRIN	3.0 J
ENDRIN ALDEHYDE	4.7 J
PENTACHLOROPHENOL	37 J

C5A	(0.0-0.5)AA
ANALYTE	ug/kg
HEPTACHLOR	1.1 J

MW13	(0.0-0.5)AA	(0.0-0.5)AD	(10.0-12.0)CA
ANALYTE	ug/kg	ug/kg	ug/kg
2,4,5-T (TRICHLOROPH		19 NJ	6.4 NJ
ACIFLUORFEN	130		
BENTAZON		240	
BETA BHC (BETA HEXAC		5.6	
DELTA BHC (DELTA HEX		1.6 J	
SILVEX (2,4,5-TP)			7.2 J

MW6, MW12, MW29, MW13, MW28, 05Q, 05M, 05L, 05K, 05N, C5C, G5D, 05J, C5A, 05H, C5B, 05, C5E, 05O, 60, 45

Chadwick Road, Bardow Road, Indian Trail Road, Tank Alley

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 5A

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
5A-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/aml s/qd_mmr.aml map MMR51586

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Groundwater Wells
- 05A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

G5A	(0.0-0.6)AA
ANALYTE	ug/kg
ACETONE	30 J

05A	(0.0-0.6)AA
ANALYTE	ug/kg
ACETONE	7.0 J

05E	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	14 J

05B	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	9.0 J

05G	(1.5-2.0)BA
ANALYTE	ug/kg
CHLOROFORM	2.0 J

05C	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	15 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 5B

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
5B-3

DRAFT

/arcdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR52386

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Grab Samples
- Groundwater Wells
- G5A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1986
All sample depth measurements are in feet

G5A	(0.0-0.5)AA
ANALYTE	ug/kg
ENDRIN ALDEHYDE	4.7 NJ

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:12000 digital black & white aerial photos (nonrectified);
Resolution: 1.73 meters; Date Flown: March 1986
Source: Col-East

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 5B

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
5B-5

DRAFT

/oaku/mmrdata/mmr/spatial/ogden/aml/qd_mmr.aml map MMR52586

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 06C — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES Areas 6/14

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE 6-1

DRAFT

/oahu/projects/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR6158_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 06B Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

14B	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ANTIMONY		0.8 J	
ARSENIC		4.7	
BERYLLIUM			0.32
CHROMIUM, TOTAL		10.4	
COBALT			4.8
COPPER		4.2	
LEAD			10.5
MAGNESIUM			2030
MANGANESE		27.6	
NITROGEN, AMMONIA (A			3.4 J
PHOSPHORUS, TOTAL OR	151 J	158 J	
POTASSIUM		545	829
SELENIUM	1.8 J	1.3 J	1.1

14D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.3	
CHROMIUM, TOTAL	10.1	
MANGANESE	24.1	
POTASSIUM		827
SELENIUM	1.3 J	0.95 J
ZINC	17.5 J	

14E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CHROMIUM, TOTAL	11.1	
COBALT	2.1	4.7
COPPER	4.1	
MAGNESIUM		1870
MANGANESE	34.1	
NITROGEN, AMMONIA (A		4.8 J
POTASSIUM		724
SELENIUM	1.7 J	

14A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.75 J	
ARSENIC	5.2	5.2
BERYLLIUM		0.34
CALCIUM	245	
CHROMIUM, TOTAL	12.5	
COBALT	2.3	5.2
COPPER	4.3	
IRON	15700	
LEAD	36	
MAGNESIUM		2050
MANGANESE	41.8	
PHOSPHORUS, TOTAL OR	122 J	
POTASSIUM		611
SELENIUM	1.5 J	

06B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MOLYBDENUM		0.92
NITROGEN, AMMONIA (A		3.0 J
POTASSIUM	284	
SELENIUM	1.5	

14C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	3.9	
MERCURY	0.07 J	
NITROGEN, AMMONIA (A		2.8 J
PHOSPHORUS, TOTAL OR	125 J	
SELENIUM	1.7 J	

06E	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
NITROGEN, AMMONIA (A			3.9 J
SELENIUM	0.95 J	0.92 J	
SILVER		0.3 J	

06C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	11.2	4.8
CHROMIUM, TOTAL	1.9	
COBALT	5.0	
COPPER	28.2	1950
MAGNESIUM		
MANGANESE		0.43 J
MOLYBDENUM		4.5 J
NITROGEN, AMMONIA (A	402	
POTASSIUM	1.1 J	
SELENIUM		

06D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MOLYBDENUM		0.53
NITROGEN, AMMONIA (A		6.2
POTASSIUM	284	

MW7	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(31.0-33.0)EA	(42.0-44.0)FA	(50.0-52.0)GA	(60.0-62.0)HA	(70.0-72.0)IA	(80.0-82.0)JA	(90.0-92.0)KA	(100.0-102.0)LA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CALCIUM				520	657	342	482		203		
COPPER				8.0	16.8						
MAGNESIUM					1670						
MANGANESE					132	111					
MERCURY											0.05
NITRATE/NITRITE (AS								0.06		0.07	
NITROGEN, AMMONIA (A			5.5 J								
POTASSIUM					1210						
SELENIUM	1.1	1.2									

Turpentine Road

MW8 MW7 MW14

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Areas 6/14

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE 6-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR6258_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 06A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

14B	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg	ug/kg
ACETONE			8.0 J
BENZENE	1.0 J		
CHLOROFORM	3.0 J	2.0 J	
METHYLENE CHLORIDE	2.0 J	2.0 J	
TCE	2.0 J	2.0 J	
TOLUENE	1.0 J	1.0 J	

14A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		8.0 J
METHYLENE CHLORIDE	2.0 J	
TCE	1.0 J	
TOLUENE	2.0 J	

06A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		57 J
TCE	1.0 J	

06B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	140 J	22 J
CHLOROFORM	9.0 J	
TCE	1.0 J	

14D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		10 J
CHLOROFORM	1.0 J	

MW7	(10.0-12.0)CA
ANALYTE	ug/kg
ACETONE	42 J

06C	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	94 J

06D	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	22 J

06E	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
CHLOROFORM	1.0 J	1.0 J
METHYLENE CHLORIDE	3.0 J	3.0 J
TCE	1.0 J	4.0 J
TETRACHLOROETHYLENE(		1.0 J

MW8 MW7 MW14 45 Turpentine Road Wheelock Road 14A 14B 14C 14D 14E 06A 06B 06C 06D 06E

279 400 279 500 279 600 279 700 279 800 279 900 280 000 280 100 280 200 280 300 280 400 280 500 280 600 280 700
829 100 829 000 828 900 828 800 828 700 828 600 828 500 828 400 828 300 828 200 828 100

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Areas 6/14

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
6-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR6358

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 06D — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES Areas 6/14

N

0 400
FEET
0 122
METERS

08E	(0.0-0.5)AD
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	20 J

06D	(0.0-0.5)AA
ANALYTE	ug/kg
BENZO(A)ANTHRACENE	20 J
CHRYSENE	28 J
FLUORANTHENE	21 J
PYRENE	54 J

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE

6-4

/oahu/mmrdata/mmr/spatial/ogden/arnls/qd_mmr.aml map MMR6458_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 06C — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

14A	(1.5-2.0)BA
ANALYTE	ug/kg
BENTAZON	190 J
DICAMBA	74 NJ

06C	(0.0-0.5)AA
ANALYTE	ug/kg
2,4 DB	160 J
2,4,5-T (TRICHLOROPH	16 J
BENTAZON	190 NJ

MW7	(0.0-0.5)AA
ANALYTE	ug/kg
ALPHA-CHLORDANE	2.6
GAMMA-CHLORDANE	2.6

MW8 MW7 MW14 #5 #7 Turpentine Road Wheelock Road 14A 14B 14C 14D 14E 06A 06C 06D

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Areas 6/14

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE

6-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR6558

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- MW8 Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Mater Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES
Area 7

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
7-1

DRAFT

MW8	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
2-NITROTOLUENE	140 J	160 J
PICRIC ACID	180	200

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR7158_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 07A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

07A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.8 J	
COPPER	8.0	
LEAD	40.2	12.8
MANGANESE	29	
MOLYBDENUM		0.59 J
NITROGEN, AMMONIA (A		12.4
PHOSPHORUS, TOTAL OR	573 J	567 J
POTASSIUM	281	
THALLIUM	1.4 J	

07C	(0.0-0.5)AA	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg
ANTIMONY		0.78 J	1.1 J
ARSENIC	5.5		
BARIUM	20		
BERYLLIUM			0.31
BORON		4.1	5.5
CALCIUM	277		
CHROMIUM, TOTAL	12.5		
COBALT	2.7	4.8	5.8
COPPER	8.3		5.8
LEAD	28.5		
MAGNESIUM		1840	2080
MANGANESE	48		107
MOLYBDENUM		0.27	0.57
NITROGEN, AMMONIA (A	28.8	3.8 J	
PHOSPHORUS, TOTAL OR	124 J		
POTASSIUM	515		637
SELENIUM	1.5 J		
VANADIUM	33.8		
ZINC	20.7		23.7

07D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON		4.2
COPPER	7.5	
MOLYBDENUM		0.68
NITRATE/NITRITE (AS	0.13	
NITROGEN, AMMONIA (A		4.0 J
PHOSPHORUS, TOTAL OR	133 J	
POTASSIUM	286	
SELENIUM	1.0 J	1.2 J

MW8	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(50.0-52.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg
CALCIUM	247			201
COPPER	4.5 J	3.5 J		
LEAD	25 J			
MAGNESIUM			1680	
MANGANESE				115
NITRATE/NITRITE (AS	0.21	0.14	0.07 J	
NITROGEN, AMMONIA (A	38.7	28.8	4.0 J	
POTASSIUM	373	307		
SELENIUM		0.95 J		

07B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY		0.86
ARSENIC	4.4	
BORON		4.0 J
COBALT		4.9
COPPER	18.4	
LEAD	20	
MAGNESIUM		1830
MANGANESE	31.8	
NITROGEN, AMMONIA (A		4.8 J
POTASSIUM	381	
SELENIUM	1.3 J	
THALLIUM	1.3 J	
VANADIUM	29.1	

07E	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg
ARSENIC		4.9		
BORON				3.2 J
COPPER	7.6	11.5		
MANGANESE		29.7		
MOLYBDENUM			0.45 J	0.62 J
NITRATE/NITRITE (AS		0.25		
NITROGEN, AMMONIA (A			6.1 J	5.8 J
PHOSPHORUS, TOTAL OR	122 J			
POTASSIUM	311	444		
SELENIUM	1.7 J	1.7 J		
VANADIUM		30.8		

CS19-MW0006E
MW25
MW1
MW8
MW7
07A
07B
07C
07D
07E
Turpentine Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 7

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE 7-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR7258_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 07B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

07C	(0.0-0.5)AA
ANALYTE	ug/kg
BENZO(B)FLUORANTHENE	33 J
CHRYSENE	22 J
FLUORANTHENE	34 J
PHENANTHRENE	24 J
PYRENE	27 J

07B	(0.0-0.5)AA
ANALYTE	ug/kg
FLUORANTHENE	19 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES Area 7

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
7-4

DRAFT

/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR7458_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 07B Location Identifier
- ug/kg Micrograms Per Kilogram
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 7

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE 7-5

DRAFT

07B	(0.0-0.5)AA
ANALYTE	ug/kg
MCPP	40000 NJ

07C	(0.0-0.5)AA
ANALYTE	ug/kg
BENTAZON	160 NJ
CHLORAMBEN	79 NJ

07E	(0.0-0.5)AD
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	6.3

CS19-MW1006E
MW25
MW1
MW8
MW7
07A
07B
07C
07D
07E
Turpentine Road

/oahu/mmrdata/mmr/spatial/ogden/aml/qd_mmr.aml map MMR7558

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 08A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

MW15	(0.0-0.5)AA	(1.5-2.0)BA	(20.0-24.0)DA	(60.0-62.0)GA	(100.0-102.0)KA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CALCIUM			383		233
CHROMIUM, TOTAL			60.8		
MANGANESE			126		
MERCURY	0.06 J		0.04		
NITRATE/NITRITE (AS		2.1 J		0.11	
SELENIUM	0.52 J				

08B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
NITRATE/NITRITE (AS	0.29	
NITROGEN, AMMONIA (A		8.5 J
SELENIUM	1.2 J	

08A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY		0.72 J
CALCIUM	357	
NITRATE/NITRITE (AS		0.09
NITROGEN, AMMONIA (A		5.4 J
PHOSPHORUS, TOTAL OR	136 J	

08C	(1.5-2.0)BA
ANALYTE	mg/kg
NITRATE/NITRITE (AS	0.05
NITROGEN, AMMONIA (A	7.2 J

08D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CALCIUM	238	
LEAD	51.1	
NITRATE/NITRITE (AS		0.11
NITROGEN, AMMONIA (A		17.6
PHOSPHORUS, TOTAL OR	125 J	

08E	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg
BARIUM	27.1	18.9		
CALCIUM	505	391		
LEAD	22.3			
NITRATE/NITRITE (AS	0.23	0.16		
NITROGEN, AMMONIA (A			8.9 J	4.4 J
PHOSPHORUS, TOTAL OR	133 J		187 J	183 J
SELENIUM		1.3 J		

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 8: Succonsette Pond

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
8-2

/oshu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR8258_edit

DRAFT

MMR Groundwater Study

MW15	(0.0-0.5)AD	(10.0-14.0)CA	(20.0-24.0)DA
ANALYTE	ug/kg	ug/kg	ug/kg
1,1-DICHLOROETHENE		1.0 J	1.0 J
BENZENE		1.0 J	1.0 J
CHLOROBENZENE		1.0 J	1.0 J
METHYLENE CHLORIDE	1.0 J		
TCE		1.0 J	
TOLUENE		1.0 J	1.0 J

08A	(0.0-0.6)AA
ANALYTE	ug/kg
TOLUENE	7.0 J

08E	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
TCE	2.0 J	3.0 J
TETRACHLOROETHYLENE(	2.0 J	

CS19-MW0010A
CS19-MW0011E
CS19-MW0002
CS19-MW0005E
CS19-MW1006E
MW9
MW25
MW15
MW8
08A
08B
08C
08D
08E
Pocasset Sandwich Road

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 08A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 8: Succonsette Pond

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
8-3

DRAFT

shu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR8358_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 08E Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 8: Succonsette Pond

N

0 400
FEET
0 122
METERS

08E	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
BENZO(B)FLUORANTHENE		24 J
CHRYSENE		25 J
FLUORANTHENE		23 J
PHENANTHRENE	49 J	44 J
PYRENE		21 J

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
8-4

DRAFT

/ostu/mmrdata/mmr/spatial/ogden/arcs/qd_mmr.aml map MMR8458_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 08D — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

MW15	(0.0-0.5)AD
ANALYTE	ug/kg
3,5-DICHLORCBENZCIC	39 NJ

08D	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	44 J

CS19-MW0010A
CS19-MW0011E
CS19-MW0002
CS19-MW0005E
CS19-MW0006E
MW9
MW25
MW15
MW8
08A
08B
08C
08D
08E
Pocasset Sandwich Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Mater Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 8: Succonsette Pond

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
8-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR8558

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 09A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

MW4	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(20.0-22.0)DA	(30.0-34.0)EA	(40.0-44.0)FA	(50.0-54.0)GA	(60.0-62.0)HA	(70.0-74.0)IA	(80.0-82.0)JA	(100.0-102.0)LA	(110.0-112.0)MA	(120.0-122.0)NA	(130.0-134.0)OA	(140.0-142.0)PA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ANTIMONY			0.97 J												
CALCIUM			214	211	376										
CHROMIUM, TOTAL	10.6	11.7			31										
COBALT	1.7	1.9													
CYANIDE			0.7 J												
MANGANESE		26.8			117										
MERCURY	0.18	0.12				0.15 J	0.05 J	0.05 J							
NITRATE/NITRITE (AS				0.11						0.05	0.08	0.05			0.08
NITROGEN, AMMONIA (A										2.6 J					
[illegible]	[illegible]	[illegible]													
SELENIUM	0.91 J	1.1		0.58 J	0.56 J	0.55 J			0.5 J		0.52 J	0.58 J	0.52 J	0.7 J	

09E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	1.7	
COPPER	3.5	
MANGANESE	33.5	
MERCURY	0.05 J	
NITROGEN, AMMONIA (A		3.6 J
PHOSPHORUS, TOTAL OR		139 J
SELENIUM	0.82 J	

09A	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg
COBALT			4.6 J	4.5 J
MAGNESIUM			1800	2050
MERCURY		1.5		
PHOSPHORUS, TOTAL OR	133 J	133 J		
POTASSIUM				707
SELENIUM	1.1 J	1.4 J	0.85 J	
ZINC			39.2	24.7

09D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	15800	
ARSENIC	4.8	
CHROMIUM, TOTAL	15.3	
COBALT	2.2	
IRON	15900	
MAGNESIUM		2020
MANGANESE	32.4	
MERCURY	0.07 J	0.07
NITROGEN, AMMONIA (A		2.9 J
PHOSPHORUS, TOTAL OR	124 J	
POTASSIUM		597
SELENIUM	1.8 J	

09B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CADMIUM	0.14 J	
CHROMIUM, TOTAL	11.4	
COBALT	1.9	4.5 J
MAGNESIUM		1810
NITROGEN, AMMONIA (A		5.2 J
PHOSPHORUS, TOTAL OR	131 J	
SELENIUM	1.9 J	1.0 J

09C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.68 J	
BERYLLIUM		0.31
MAGNESIUM		1660
MERCURY	0.08 J	
PHOSPHORUS, TOTAL OR	138 J	
POTASSIUM		636
SELENIUM	2.0 J	

MW4
09A
09B
09C
09D
09E
Pocasset Road
Turpentine Road
Wood Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 9

N

0 275
FEET
0 84
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE 9-2

DRAFT

ahu/mmrdata/mmr/spatial/ogden/arnis/qd_mmr.aml map MMR92_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 09A — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

MW4	(10.0-14.0)CA
ANALYTE	ug/kg
CHLOROFORM	5.0 J

09A	(0.0-0.5)AA
ANALYTE	ug/kg
EDB	1.1
METHYLENE CHLORIDE	1.0 J
MTBE	1.2 J

09E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	48 J	
CHLOROFORM	2.0 J	4.0 J

09B	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	20 J

09C	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	89 J
CHLOROFORM	2.0 J

MW4
09A
09B
09C
09D
09E

Pocasset Road
Wood Road
Turpentine Road

280 100 280 200 280 300 280 400 280 500 280 600 280 700 280 800 280 900 281 000
831 100 831 000 830 900 830 800 830 700 830 600 830 500 830 400

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 9

N

0 275
FEET
0 84
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
9-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR93

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 09A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

MW4	(0.0-0.5)AA	(10.0-14.0)CA	(30.0-34.0)EA	(50.0-54.0)GA	(80.0-82.0)HA	(120.0-122.0)NA	130.0-134.0)OA
ANALYTE	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	27 J	34 J	19 J	25 J	38 J	16 J	180 J

09A	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	22 J
FLUORANTHENE	21 J

09E	(0.0-0.5)AA
ANALYTE	ug/kg
PHENANTHRENE	21 J

09B	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	21 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Data Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 9

N

0 275
FEET
0 84
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/23/98							

FIGURE
9-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR94_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 09E — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

MW4	(60.0-62.0)HA
ANALYTE	ug/kg
ALPHA BHC (ALPHA HEX	1.4 J
DELTA BHC (DELTA HEX	1.3 J

09E	(1.5-2.0)BA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	7.4
MCPA	6100 NJ

MW4
09A
09E
09B
09C
09D

Pocasset Road
Turpentine Road
Wood Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA66GI6; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA66GI6

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 9

N

0 275
FEET
0 84
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
9-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR95

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 10A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 10

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
10-2

DRAFT

MW5	(0.0-0.5)AA	(0.0-0.5)AD	(19.0-14.0)CA	(20.0-22.0)DA	(30.0-32.0)EA	(50.0-52.0)GA	(70.0-74.0)IA	(100.0-102.0)LA	(110.0-120.0)NA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ANTIMONY					0.71 J				
CALCIUM			253	427	242	249		485	
CHROMIUM, TOTAL								17.6	
MANGANESE			129		130	148			
MERCURY									0.08
NITRATE/NITRITE (AS	0.32	0.13							
POTASSIUM	274							725	
SELENIUM	0.6 J						0.71 J	1.3 J	

10A	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ANTIMONY	0.59 J		
MANGANESE		24.9	
MERCURY	0.11 J		
NITROGEN, AMMONIA (A			4.3 J
PHOSPHORUS, TOTAL OR		122 J	
POTASSIUM		322	
SELENIUM	1.3 J		0.85 J

10B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.1	
NITROGEN, AMMONIA (A		4.5 J
SELENIUM	0.76 J	0.92 J

10C	(0.0-0.5)AA	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg
CALCIUM	215		
MANGANESE	30.9		
PHOSPHORUS, TOTAL OR	126 J		
POTASSIUM	580		
SELENIUM	0.74 J	0.99 J	
ZINC			29.9

10E	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	13100
ARSENIC	6.9
BARIUM	20
CALCIUM	425
CHROMIUM, TOTAL	14.4
COBALT	2.4
COPPER	6.1
IRON	18800
LEAD	32.8
MANGANESE	60.7
NITROGEN, AMMONIA (A	29.6 J
PHOSPHORUS, TOTAL OR	208 J
POTASSIUM	848
SELENIUM	2.0 J
VANADIUM	45.4
ZINC	23.2 J

10D	(0.0-0.5)AA
ANALYTE	mg/kg
SELENIUM	1.0 J

/oshu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR102_edit

281 400 281 500 281 600 281 700 281 800 281 900 282 000

830 600 830 500 830 400 830 300 830 200 830 100

Jefferson Road

60

60

60

MW5	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	61 J

10A	(0.0-0.5)AA
ANALYTE	ug/kg
CHLOROFORM	2.0 J
METHYLENE CHLORIDE	1.0 J
TCE	3.0 J

10O	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		8.0 J
CHLOROFORM	7.0 J	

10A 10B 10C 10D 10E MW5

281 400 281 500 281 600 281 700 281 800 281 900 282 000

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR103

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 10A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 10

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
10-3

DRAFT

281 400 281 500 281 600 281 700 281 800 281 900 282 000

830 600 830 500 830 400 830 300 830 200 830 100

Jefferson Road

60

10B	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	20 J

MW5	(0.0-0.5)AA	(0.0-0.5)AD	(10.0-14.0)CA
ANALYTE	ug/kg	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	43 J	54 J	26 J

10A	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	20 J

10A 10B 10C 10D 10E

MW5

60 60 60

10E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	43 J	
DIETHYL PHTHALATE		27 J

281 400 281 500 281 600 281 700 281 800 281 900 282 000

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR104_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 10A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: 6stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MABSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MABSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 10

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
10-4

DRAFT

281 400 281 500 281 600 281 700 281 800 281 900 282 000

830 600 830 500 830 400 830 300 830 200 830 100

Jefferson Road

10B	(1.5-2.0)BA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	10 NJ

60

10A 10B 10C 10D 10E

MW5

60

60

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 10B Location Identifier
- ug/kg Micrograms Per Kilogram
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 10

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
10-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR105

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- MW25 Location Identifier
- ug/kg Micrograms Per Kilogram
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES Area 11

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
11-1

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR11158_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 11A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

MW25	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-14.0)CA	(30.0-32.0)EA	(42.0-44.0)FA	(42.0-44.0)FD	(50.0-52.0)GA	(80.0-82.0)JA	(110.0-114.0)MA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ANTIMONY					0.65 J					
ARSENIC		3.9								
BARIUM	22.4	17.4								
CADMIUM	0.13									
CALCIUM	550	243		247	284	277	231	590	278	209
CHROMIUM, TOTAL	11.3	11.6								
COBALT	2.3	2.1								
COPPER	58.8	33.8	5.2		5.7 J			7.4 J	8.8 J	
LEAD	36.8	18.8								
MAGNESIUM			2050					2120		
MANGANESE	95.3	58.4				134				
MERCURY	0.18 J									
NITRATE/NITRITE (AB	0.11								0.1	
NITROGEN, AMMONIA (A			2.8 J							
PHOSPHORUS, TOTAL OR	171 J	139 J								
POTASSIUM	458	443	678					587		
SELENIUM	1.9	1.9								
SILVER	1.9	0.82 J								
THALLIUM	39.2									
ZINC	51.9	31.4						25.8 J		

11E	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
COPPER	17.6	15.3	
MANGANESE	39.8	40.6	
MOLYBDENUM			0.87
NITROGEN, AMMONIA (A			10.1 J
PHOSPHORUS, TOTAL OR	135 J	438 J	374 J
POTASSIUM	282	309	
SILVER	0.26 J	0.39 J	

11A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	17.1	
CALCIUM	282	329
COPPER	28.4	
MANGANESE	47.5	
MOLYBDENUM		0.45 J
NITRATE/NITRITE (AS		0.09 J
NITROGEN, AMMONIA (A	27.1	3.5 J
POTASSIUM	440	
THALLIUM	1.8 J	
ZINC	23	

11D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COPPER	21.4	
MANGANESE	25.8	
MOLYBDENUM		0.42 J
NITRATE/NITRITE (AB		0.06 J
NITROGEN, AMMONIA (A		8.9 J
PHOSPHORUS, TOTAL OR	161 J	780 J
POTASSIUM	276	
SILVER	0.28 J	
ZINC	23.7	

11B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY		0.82 J
ARSENIC	4.2	
CHROMIUM, TOTAL	14.4	
COBALT	3.3	
COPPER	11.6	
MAGNESIUM	1810	
MANGANESE	62.5	
MERCURY		0.09
MOLYBDENUM		0.43 J
NITROGEN, AMMONIA (A		8.0 J
POTASSIUM	586	
SELENIUM	0.92 J	
ZINC	39.4	

11C	(0.0-0.5)AA	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg
ALUMINUM			15900
BARIUM	21.4		
BERYLLIUM		0.33	0.35
BORON			3.3 J
CALCIUM	357		
CHROMIUM, TOTAL	12.7	17.8	18.3
COBALT	2.2	5.0	4.9
COPPER	20.9	6.6	5.5
IRON		15800	17400
LEAD	24.1		8.7
MAGNESIUM		2400	2400
MANGANESE	54.6		
NITROGEN, AMMONIA (A		6.6 J	7.0 J
PHOSPHORUS, TOTAL OR	122 J		
POTASSIUM	522	696	780
SELENIUM	1.4 J		
VANADIUM	32		25.3
ZINC	30.8	24	25.3

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 11

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/03							

FIGURE
11-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR1125B_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 11A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 11

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
11-3

CS19-MW0007C
CS19-MW0007E
CS19-MW0009E
CS19-MW0010A
CS19-MW0011E
CS19-MW0002
CS19-MW0005E
CS19-MW0006E
MW9
MW25
MW8
MW1
11A
11B
11C
11D
11E
Sandwich Road
Turnentine Road

11A	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	220
CHLOROFORM	2.0 J
MEK	32
MTBE	1.2
TOLUENE	1.0 J

11B	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	110
CHLOROFORM	2.0 J
MEK	4.0 J
METHYLENE CHLORIDE	1.0 J
MTBE	1.1 J

11C	(0.0-0.5)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	2.0 J
MTBE	3.5 J

11D	(0.0-0.5)AA
ANALYTE	ug/kg
CHLOROFORM	1.0 J
METHYLENE CHLORIDE	2.0 J

MW25	(0.0-0.5)AD	(10.0-14.0)CA
ANALYTE	ug/kg	ug/kg
ACETONE	120 J	7.0 J

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR11358

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- MW25 Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1958
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:17200 digital black & white aerial photos;
Resolution: 2.95 meters; Date Flown: April 30, 1958
Source: National Archives & Records Service

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 11

N

0 400
FEET
0 122
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE 11-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR11558

MMR Groundwater Study

279 100 279 200 279 300 279 400 279 500 279 600 279 700

827 800 827 700 827 600 827 500 827 400 827 300

MW19	(0.0-0.5)AA	(0.0-0.5)AD	(10.0-14.0)CA
ANALYTE	ug/kg	ug/kg	ug/kg
2-AMINO-4,6-DINITROT	350	220	
4-AMINO-2,6-DINITROT	280 J	200 J	
HMX	600 NJ	690 NJ	
RDX	810	520	120 J

12D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
2-AMINO-4,6-DINITROT	130 J	
HMX	340 NJ	240 J
RDX	1200 NJ	3900

12C	(0.0-0.5)AA
ANALYTE	ug/kg
2-AMINO-4,6-DINITROT	800
4-AMINO-2,6-DINITROT	400
HMX	320
RDX	640

12B	(0.0-0.5)AA
ANALYTE	ug/kg
HMX	620 J
RDX	2900

12A	(1.5-2.0)BA
ANALYTE	ug/kg
RDX	190 J

12E	(0.0-0.5)AA
ANALYTE	ug/kg
HMX	180 NJ

12A 12B 12C 12D 12E 12F MW19

45

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 12A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES
Area 12

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/24/98							

FIGURE
12-1

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR121

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 12A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

MW19	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-14.0)CA	(20.0-22.0)DA	(30.0-32.0)EA	(42.0-44.0)FA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ANTIMONY	0.95 J	1.0					
BARIUM	25.5	39.4					
CADMIUM		0.08 J					
CALCIUM	265	490		238		322	
COBALT	2.2	3.1					
COPPER	51.8	100					
LEAD	51	65.7					
MAGNESIUM		1150					
MANGANESE	110	153					
MERCURY	0.49 J	0.62					
MOLYBDENUM			0.37 J				
NICKEL						10.4	
NITRATE/NITRITE (AS	0.18	0.17		0.09	0.07	0.16	0.27
NITROGEN, AMMONIA (A			3.4 J	3.7 J		4.4 J	2.4 J
PHOSPHORUS, TOTAL OR	126 J						
POTASSIUM	385	461					
SELENIUM		0.78 J				1.2	
SILVER		0.65 J					
ZINC	49.3	72.4					

12D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.1 J	
BARIUM	22.6	
BORON		1.2
CALCIUM	315	221
CHROMIUM, TOTAL	10.5	
COBALT	3.4	
COPPER	38.5	22.8
LEAD		10.8
MAGNESIUM	1440	
MANGANESE	153	1.00 J
MERCURY	0.19	0.17
MOLYBDENUM		0.32 J
NITRATE/NITRITE (AS		0.07 J
NITROGEN, AMMONIA (A		9.1 J
PHOSPHORUS, TOTAL OR		195 J
POTASSIUM	780	
ZINC	36.7 J	

12C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	35.8	
CADMIUM	0.16	
COBALT	2.7	
COPPER	59.2	43.7
LEAD	38.5	28.7
MANGANESE	194	179
MERCURY	0.89	0.3
MOLYBDENUM	0.56 J	0.98
NITRATE/NITRITE (AS	0.15	0.08
NITROGEN, AMMONIA (A		5.1
PHOSPHORUS, TOTAL OR	470 J	
POTASSIUM	385	
ZINC	81.1	48.8 J

12E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	1.1 J	
CALCIUM		211
COBALT	3.3	
COPPER	12.1 J	21.7
LEAD		14.5
MAGNESIUM	1170	
MANGANESE	84.4	
MERCURY		0.15
MOLYBDENUM		0.53 J
NITRATE/NITRITE (AS		0.1
POTASSIUM	472	
ZINC	21.6 J	41.1

12B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	1.8 J	
ARSENIC	4.2	
BARIUM	26	
CADMIUM	0.35	
CHROMIUM, TOTAL	11.5	
COBALT	4.2	
COPPER	83.2	25.6
LEAD	45.4	17.5
MAGNESIUM	1400	
MANGANESE	194	
MERCURY		0.13
MOLYBDENUM	0.94	0.56 J
NITRATE/NITRITE (AS	0.15	
PHOSPHORUS, TOTAL OR	309 J	
POTASSIUM	458	
ZINC	79	32.5 J

12A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	17.2	
COBALT	2.5	
COPPER	22.5	24.8
LEAD	142 J	37.6
MAGNESIUM	1050	
MANGANESE	117 J	131
MERCURY	0.25	0.09 J
MOLYBDENUM		0.65
PHOSPHORUS, TOTAL OR		205
POTASSIUM	351	
ZINC	81.8 J	36.7 J

12F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	25	
CALCIUM	239	
COPPER	3.4	
MANGANESE	57.3 J	
MOLYBDENUM		0.77
NITRATE/NITRITE (AS	0.38 J	0.48
NITROGEN, AMMONIA (A		7.8 J
PHOSPHORUS, TOTAL OR	335 J	742

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA&EGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA&EGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 12

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
12-2

DRAFT

oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR122

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 12B — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

MW19	(0.0-0.5)AD
ANALYTE	ug/kg
TCE	2.0 J

12B	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	7.0 J

12D 12E 12C MW19 12B 12A 12F

45

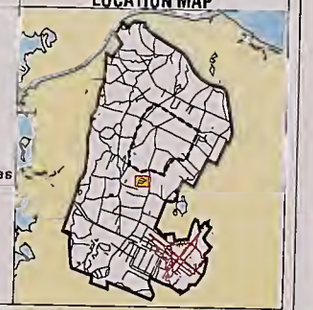
279 100 279 200 279 300 279 400 279 500 279 600 279 700

827 800 827 700 827 600 827 500 827 400 827 300

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 12

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/24/98							

FIGURE
12-3

DRAFT

ahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR123

279 100 279 200 279 300 279 400 279 500 279 600 279 700

827 600 827 500 827 400 827 300

MW19	(0.0-0.5)AA	(0.0-0.5)AD	(10.0-14.0)CA
ANALYTE	ug/kg	ug/kg	ug/kg
2,4-DINITROTOLUENE		1600 J	
2,6-DINITROTOLUENE		40 J	
BENZO(A)ANTHRACENE	58 J	53 J	
BENZO(A)PYRENE	42 J	38 J	
BENZO(B)FLUORANTHENE	61 J	66 J	
BENZO(G,H,I)PERYLENE	28 J	30 J	
BENZO(K)FLUORANTHENE	110 J	60 J	
BIS(2-ETHYLHEXYL) PH	25 J	300 J	38 J
CHRYSENE	110 J	98 J	
DI-N-BUTYL PHTHALATE	250 J	22 J	
FLUORANTHENE	77 J	62 J	
HEXACHLOROBENZENE	160 J	380 J	
INDENO(1,2,3-C,D)PYR	30 J	29 J	
N-NITROSODIPHENYLAMI	40 J	930 J	
PHENANTHRENE		20 J	
PYRENE	80 J	64 J	

12D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BENZO(A)ANTHRACENE	24 J	
BENZO(A)PYRENE	22 J	20 J
BENZO(B)FLUORANTHENE	59 J	22 J
BENZO(K)FLUORANTHENE	38 J	27 J
CHRYSENE	40 J	41 J
DI-N-BUTYL PHTHALATE	37 J	200 J
FLUORANTHENE	23 J	47 J
N-NITROSODIPHENYLAMI		84 J
PHENANTHRENE		33 J
PYRENE	43 J	36 J

12E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BENZO(A)ANTHRACENE		27 J
CHRYSENE		43 J
DI-N-BUTYL PHTHALATE		19 J
FLUORANTHENE		79 J
PYRENE	21 J	89 J

12C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
2,4-DINITROTOLUENE	66 J	
BENZO(A)ANTHRACENE	84 J	82 J
BENZO(A)PYRENE	50 J	48 J
BENZO(B)FLUORANTHENE	120 J	90 J
BENZO(G,H,I)PERYLENE	32 J	
BENZO(K)FLUORANTHENE	86 J	58 J
BIS(2-ETHYLHEXYL) PH	150 J	160 J
CHRYSENE	140 J	110 J
DI-N-BUTYL PHTHALATE	290 J	78 J
FLUORANTHENE	200 J	59 J
INDENO(1,2,3-C,D)PYR	29 J	
PHENANTHRENE		21 J
PYRENE	190 J	62 J

12A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
BENZO(B)FLUORANTHENE	18 J	
BENZO(K)FLUORANTHENE	21 J	
BIS(2-ETHYLHEXYL) PH	34 J	
CHRYSENE	21 J	
DI-N-BUTYL PHTHALATE		64 J

12B	(0.0-0.5)AA
ANALYTE	ug/kg
BENZO(B)FLUORANTHENE	21 J
BENZO(K)FLUORANTHENE	20 J
BIS(2-ETHYLHEXYL) PH	120 J
CHRYSENE	24 J

12D 12E 12C MW19 12B 12A 12F

45 45

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 12A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 12

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/24/98							

FIGURE
12-4

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR124

DRAFT

MMR Groundwater Study

279 100 279 200 279 300 279 400 279 500 279 600 279 700

827 800 827 700 827 600 827 500 827 400 827 300

MW19	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
ALPHA BHC (ALPHA HEX	2.9 J	
ALPHA ENDOSULFAN	2.4 J	13 J
BENTAZON		120
DIELDRIN		1.8 J
GAMMA BHC (LINDANE)	2.4	
HEPTACHLOR EPOXIDE	1.2 J	4.2 J
MCPP		3600 NJ
PENTACHLOROPHENOL	10 J	7.3 J

12D	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	5.4 J

12C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ALPHA ENDOSULFAN	1.9 NJ	1.8 NJ
DELTA BHC (DELTA HEX	4.6 J	1.6 J
DICAMBA	10 NJ	

12B	(0.0-0.5)AA
ANALYTE	ug/kg
ALPHA ENDOSULFAN	1.7 NJ

12A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
MCPP	6400 NJ	9500 NJ

12D 12E 12C MW19 12B 12A 12F

45 45 45 45

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 12A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MAGGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MAGGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 12

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
12-5

DRAFT

ehtt/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR125

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 13A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1991
All sample depth measurements are in feet

MW16	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(10.0-14.0)DA	(22.0-24.0)EA	(30.0-32.0)FA	(50.0-52.0)HA	(60.0-62.0)IA	(70.0-72.0)JA	(80.0-84.0)KA	(90.0-95.0)LA	(95.0-102.0)MA	(102.0-110.0)NA	(115.0-120.0)OA	(120.0-125.0)PA	(130.0-135.0)RA
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CALCIUM				443	256	489	735	313	283	1070						
CHROMIUM, TOTAL												27		19.1	23.4	31.3
COBALT	3.2	3.7														
COPPER	4.5					6.8 J				7.4 J						
MAGNESIUM										2380						
MANGANESE	99.8	90.6	112	117	122	150	146			158						
MERCURY	0.08 J		0.08 J													
MOLYBDENUM			0.42 J													
NICKEL										10.3						
NITRATE/NITRITE (AS			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
NITROGEN, AMMONIA (A			4.8 J													
PHOSPHORUS, TOTAL OR		139 J														
POTASSIUM	322	308					691			1040						
SELENIUM			1.1 J							0.75 J						
SODIUM												110 J				
ZINC		19.9								27.9						

13D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.0 J	
BARIUM	18.3	
BERYLLIUM	0.41	0.38
CHROMIUM, TOTAL	13	
COBALT	6.0	
COPPER	8.1	
MAGNESIUM	1970	
MANGANESE	132	152
PHOSPHORUS, TOTAL OR		188
POTASSIUM	666	809
SELENIUM	0.96 J	
ZINC	27 J	

13E	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
CHROMIUM, TOTAL	10.7	12	
COBALT	4.3	4.7	4.8
COPPER	7.1	8.0	
MAGNESIUM	1220	1410	
MANGANESE	82.4	94.1	
NITRATE/NITRITE (AB			0.14
NITROGEN, AMMONIA (A			3.4 J
POTASSIUM	410	479	
ZINC	23.2 J	23.1 J	

13F	(0.0-0.5)AA
ANALYTE	mg/kg
COBALT	2.3
COPPER	8.0
LEAD	29.9 J
MANGANESE	57.2 J
PHOSPHORUB, TOTAL OR	153 J
POTASSIUM	276

13A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	3.2	
COPPER	6.4	
MANGANESE	76.6	
MOLYBDENUM		0.38 J
NITRATE/NITRITE (AS		0.08
POTASSIUM	318	

13G	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC	4.0	
CHROMIUM, TOTAL	14.5	
COBALT	3.3	
COPPER	9.2	7.2
MAGNESIUM	1360	
MANGANESE	53.1 J	
NITRATE/NITRITE (AS		0.09 J
NITROGEN, AMMONIA (A		4.6 J
PHOSPHORUS, TOTAL OR		160 J
POTASSIUM	439	
ZINC	18.7	

13J	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CHROMIUM, TOTAL	12.6	
COBALT	1.8	
MANGANESE	29.6 J	
MOLYBDENUM	0.38 J	
NITROGEN, AMMONIA (A		4.4 J
PHOSPHORUS, TOTAL OR	125 J	
SELENIUM	1.3 J	

13H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
COBALT	2.4	
MANGANESE	88.1 J	
NICKEL		18.9
NITROGEN, AMMONIA (A		3.5 J

13C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	17.7	
CHROMIUM, TOTAL	14.4	
COBALT	4.8	
COPPER	8.2	
MAGNESIUM	1800	
MANGANESE	81.7	
NITRATE/NITRITE (AB		0.05
PHOSPHORUB, TOTAL OR		137
POTASSIUM	712	
ZINC	29.5 J	

13I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BARIUM	24.5	
BERYLLIUM		0.35
CALCIUM	218	203
CHROMIUM, TOTAL	11.6	
COBALT	2.1	
COPPER	5.7	
LEAD		13.4
MANGANESE	110 J	
MOLYBDENUM	0.67 J	
NICKEL		27.3
NITRATE/NITRITE (AS	0.25 J	0.06 J
NITROGEN, AMMONIA (A		11.7 J
PHOSPHORUS, TOTAL OR	172 J	431 J
POTASSIUM	411	
SELENIUM	1.7 J	
ZINC	18.9	

13B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
CHROMIUM, TOTAL	12.5	
COBALT	4.1	
COPPER	21.5	8.4
LEAD		10
MAGNESIUM	1280	
MANGANESE	72.7	
MOLYBDENUM		0.84
NITRATE/NITRITE (AS		0.35
NITROGEN, AMMONIA (A		9.3 J
PHOSPHORUB, TOTAL OR		198 J
POTASSIUM	429	
SELENIUM	1.2	
ZINC	23.2 J	

MW16 MW17 FS14-MW3

Goat Pasture Road

Gibbs Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:39996 digital CIR aerial photos (nonrectified);
Resolution: 3.6 meters; Date Flown: April 1991
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 13

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
13-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr aml map MMR13291_edit

DRAFT

MW16	(0.0-0.0)CA
ANALYTE	ug/kg
ACETONE	130
TOLUENE	32

13D	(0.0-0.5)AA
ANALYTE	ug/kg
TCE	2.0 J

13G	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		15 J
METHYLENE CHLORIDE	4.0 J	
TOLUENE		1.0 J

13H	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	37 J

MW16
MW17
FS14-MW3
13A
13B
13C
13D
13E
13F
13G
13H
13I
13J
Goat Pasture Road
Gibbs Road

MMR Groundwater Study

LEGEND

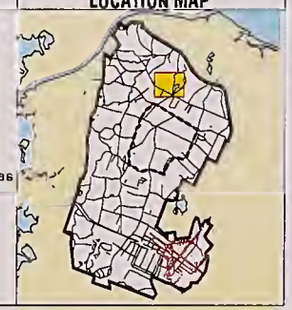
- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 13D Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1991
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:39996 digital CIR aerial photos (nonrectified);
Resolution: 3.6 meters; Date Flown: April 1991
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 13

N

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
13-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR13391_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 13B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1991
All sample depth measurements are in feet

13F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
1,2,4-TRICHLOROBENZE		26 J
2,4-DINITROTOLUENE		36 J
4-CHLORO-3-METHYLPHE		61 J
4-NITROPHENOL		68 J
ACENAPHTHENE		38 J
BENZO(A)ANTHRACENE	33 J	
BENZO(A)PYRENE	23 J	
BENZO(B)FLUORANTHENE	42 J	
BENZO(G,H,I)PERYLENE	22 J	
BENZO(K)FLUORANTHENE	35 J	
CHRYSENE	49 J	24 J
FLUORANTHENE	48 J	35 J
INDENO(1,2,3-C,D)PYR	19 J	
N-NITROSODI-N-PROPYL		35 J
PENTACHLOROPHENOL		49 J
PYRENE	61 J	100 J

13E	(0.0-0.5)AD
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	20 J

MW16	(0.0-0.0)CA	(0.0-0.5)AO	(10.0-14.0)DA
ANALYTE	ug/kg	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	36 J	16 J	19 J
CHRYSENE		25 J	
DI-N-BUTYL PHTHALATE		22 J	790
DIETHYL PHTHALATE		26 J	
FLUORANTHENE		27 J	
N-NITROSODIPHENYLAMI			75 J
PYRENE		21 J	

13B	(0.0-0.5)AA
ANALYTE	ug/kg
FLUORANTHENE	35 J
PYRENE	27 J

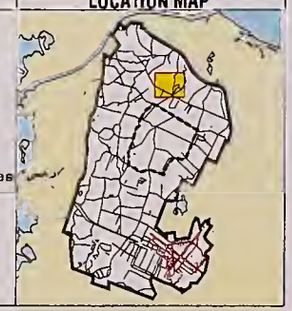
13G	(0.0-0.5)AA
ANALYTE	ug/kg
BENZO(B)FLUORANTHENE	38 J
CHRYSENE	25 J

MW16
MW17
FS14-MW3
Goat Pasture Road
Gibbs Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Mater Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:39996 digital CIR aerial photos (nonrectified);
Resolution: 3.6 meters; Date Flown: April 1991
Source: USGS

TOPOGRAPHY: 3 mater contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES Area 13

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
13-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR13491_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- 13B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1991
All sample depth measurements are in feet

MW16	(0.0-0.0)CA	(10.0-14.0)DA
ANALYTE	ug/kg	ug/kg
ALDRIN		1.0 J
DDT (1,1-BIS(CHLOROP		2.1 J
DELTA BHC (DELTA HEX	1.4 J	
DIELDRIN		2.2 J
ENDRIN		2.1 J
HEPTACHLOR		1.3 J

13F	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	15 J

13H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
DICAMBA	7.8 J	
MCPA		8400 NJ

13B	(1.5-2.0)BA
ANALYTE	ug/kg
DOE (1,1-BIS(CHLOROP	4.0 J
DDT (1,1-BIS(CHLOROP	8.4

13I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
DDE (1,1-BIS(CHLOROP		2.2 J
DDT (1,1-BIS(CHLOROP		4.8
MCPA		20000 J
PICLORAM	7.4 J	

13J	(0.0-0.5)AA
ANALYTE	ug/kg
SILVEX (2,4,5-TP)	7.5 J

13C	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	12 J

MW16 MW17 FS14-MW3

Goat Pasture Road

Gibbs Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:39996 digital CIR aerial photos (nonrectified);
Resolution: 3.6 meters; Date Flown: April 1991
Source: USGS

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 13

0 450
FEET
0 137
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
13-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR13591

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 15B Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1977
All sample depth measurements are in feet

15B	(0.0-0.5)AA
ANALYTE	mg/kg
COBALT	1.9
MANGANESE	41.6

15C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.97 J	
NITRATE/NITRITE (AS	0.11	0.06
PHOSPHORUS, TOTAL OR	128 J	

Monument Beach Road
Spruce Swamp Road
15A
15B
15C
CS19-MW0007C
CS19-MW0007E
CS19-MW0011E
MW9
278 400 278 500 278 600 278 700 278 800 278 900 279 000 279 100 279 200 279 300 279 400
829 200 829 100 829 000 828 900 828 800 828 700 828 600 828 500 828 400

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:21600 digital black & white aerial photos (nonrectified);
Resolution: 1.89 meters; Date Flown: December 10, 1977
Source: Lockwood, Kessler & Bartlett

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES Area 15

0 300
FEET
0 91
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE
15-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr aml map MMR15277_edit

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 15C — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1977
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:21600 digital black & white aerial photos (nonrectified);
Resolution: 1.89 meters; Date Flown: December 10, 1977
Source: Lockwood, Kessler & Bartlett

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 15

N

0 300
FEET
0 91
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/28/98							

FIGURE 15-3

DRAFT

/oshu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR15377_edit

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 15B — Location Identifier
- ug/kg — Micrograms Per Kilogram
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1977
All sample depth measurements are in feet

15B	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
2,4,5-T (TRICHLOROPH	22 NJ	7.6 NJ
DICAMBA	7.7	7.3 NJ
SILVEX (2,4,5-TP)	16	23 NJ

Monument Beach Road
Spruce Swamp Road
15B
15A
15C
CS19-MW0007C
CS19-MW0007E
CS19-MW0011E
CS19
CS19-M
MW9
75
60
50

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

IMAGERY: 1:21600 digital black & white aerial photos (nonrectified);
Resolution: 1.89 meters; Date Flown: December 10, 1977
Source: Lockwood, Kessler & Bartlett

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 15

0 300 FEET
0 91 METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
15-5

/oahu/mmrdata/mmr/spatial/ogden/arnk/qd_mmr.aml map MMR15577

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GHC — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

GHC	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
PETN	36000 J	47000

GP-16

control grids

GHO

GHA

GHL

GHK

GHC

GHB

GHM

GHJ

GHN

GHH

GHI

GHG

GHF

GHD

GHE

Gaudet Road

Jefferson Road

Canal View Road

FIRING DIRECTION

277 300 277 400 277 500 277 600 277 700 277 800

833 600 833 700 833 600 833 500

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES
Area 16

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
16-1

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR161

DRAFT

MMR Groundwater Study

277 300 | 277 400 | 277 500 | 277 600 | 277 700 | 277 800

833 800 | 833 700 | 833 600 | 833 500

GHA	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
BORON	12.4	14.5	
CADMIUM	0.32	0.35	
COPPER	5.1	4.3	7.8
LEAD			10.2
MERCURY			0.11
MOLYBDENUM	0.59 J	0.69 J	1.2
NITRATE/NITRITE (AS	0.39	0.3	0.22 J
NITROGEN, AMMONIA (A			8.4 J
ZINC		23.2 J	27.4 J

GHM	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ARSENIC	3.9		
BORON	20.6	17.3	
CADMIUM	0.26	0.21	
CHROMIUM, TOTAL	12 J	10.9 J	
COBALT	1.9		
COPPER	5.0	5.1	
MANGANESE	28.5	24.9	
MOLYBDENUM	0.81 J	1.0 J	0.48 J
NITRATE/NITRITE (AS			0.08 J

GHL	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	18.4	
CADMIUM	0.24	
CHROMIUM, TOTAL	12.8 J	
COBALT	2.4	
COPPER	3.4	
MANGANESE	42.2	
MOLYBDENUM	0.81 J	
NITRATE/NITRITE (AS	0.39	0.75 J
POTASSIUM	288	

GP-16

GH8	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY		1.1 J
BORON	14.2	
CADMIUM	0.29	
COPPER	6.3	
MANGANESE	27.4	
MOLYBDENUM	0.64 J	
NITRATE/NITRITE (AS	0.51	0.07 J

GHK	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ARSENIC		4.8
BORON	17.2	
CADMIUM	0.27	
CHROMIUM, TOTAL	11.1 J	
COBALT	2.0	
COPPER	3.8	
MANGANESE	37.8	
MOLYBDENUM	0.91 J	0.34 J
NITRATE/NITRITE (AS	0.5	0.11 J

control grids

GHO	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	1.4 J	
MOLYBDENUM	10.91	0.71
NITROGEN, AMMONIA (A		2.9 J
THALLIUM	1.8 J	

GHC	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
MOLYBDENUM	1.1	0.79	0.78
NITRATE/NITRITE (AS	0.4		0.08
SELENIUM		1.1 J	

GHJ	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY		1.3 J
BORON	13	
CADMIUM	0.22	
MANGANESE	28.7	
MOLYBDENUM	0.72 J	
NITRATE/NITRITE (AS	0.18 J	0.1 J
NITROGEN, AMMONIA (A		3.1 J

GHN	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MANGANESE	38.1	
MOLYBDENUM	0.31 J	0.45 J
NITROGEN, AMMONIA (A		3.5 J
PHOSPHORUS, TOTAL OR		199

GHG	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.82 J	
ARSENIC	4.3	
BORON	19.4	
CADMIUM	0.25	
CHROMIUM, TOTAL	14.5 J	
COBALT	3.1	
COPPER		5.6
MAGNESIUM	1210	
MANGANESE	49	
MOLYBDENUM	0.47 J	0.39 J
NITRATE/NITRITE (AS		0.11 J
POTASSIUM	385	
THALLIUM		2.0 J

GHD	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.85 J	
ARSENIC	4.2	
BORON	13.5	1.1
CADMIUM	0.21	
CHROMIUM, TOTAL	10.4 J	
MOLYBDENUM	0.78 J	0.41 J
NITRATE/NITRITE (AS	0.13 J	
NITROGEN, AMMONIA (A		3.7 J

GHH	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	15.1	0.94
CADMIUM	0.17	
CHROMIUM, TOTAL	11.1 J	
MANGANESE	27.2	
MOLYBDENUM	0.69 J	
NITRATE/NITRITE (AS		0.13 J

GHF	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	8.8	0.45 J
MOLYBDENUM	0.87	0.39 J
NITRATE/NITRITE (AS	0.13	0.05 J
NITROGEN, AMMONIA (A		3.4 J

GHE	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	11.1	0.94
CADMIUM	0.2	
MOLYBDENUM	0.75 J	

GHI	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	17.3	0.72
CADMIUM	0.24	
MANGANESE	30.3	
MOLYBDENUM	1.3 J	0.48 J
NICKEL		12.4
NITRATE/NITRITE (AS	0.11 J	0.05 J
NITROGEN, AMMONIA (A		3.8 J

GHA GHB GHC GHD GHE GHF GHG GHH GHI GHJ GHK GHL GHM GHN GHO

Jefferson R

Canal View Road

FIRING DIRECTION

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GHA Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 16

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
16-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR162

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GHC — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Area 16

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
16-3

DRAFT

GHK	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE		7.0 J
METHYLENE CHLORIDE	2.0 J	

GHL	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	4.0 J

GHC	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
ACETONE	13	9.0 J

GHJ	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	5.0 J
METHYLENE CHLORIDE	2.0 J

GHI	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	10 J	4.0 J
METHYLENE CHLORIDE	2.0 J	

GHN	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	140 J

GHM	(0.0-0.5)AD
ANALYTE	ug/kg
ACETONE	14
METHYLENE CHLORIDE	8.0 J

GHD	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	21	13 J
METHYLENE CHLORIDE	5.0 J	

GHG	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	10 J
METHYLENE CHLORIDE	4.0 J

GHF	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	8.0 J

GHE	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	34
METHYLENE CHLORIDE	7.0 J

GHH	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	44	11 J
METHYLENE CHLORIDE	5.0 J	

/olhu/mmi/data/mmr/spatial/ogden/mxds/qd_mmr.mxd map MMR163

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GHA — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 16

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
16-4

DRAFT

277 300 277 400 277 500 277 600 277 700 277 800
833 800 833 700 833 600 833 500

Gaudet Road
Jefferson Road
Canal View Road
45
GP-16
control grids
FIRING DIRECTION

GHA GHB GHC GHF GHG GHH GHI GHJ GHK GHL GHM GHN GHO GHE GHD

GHB	(0.0-0.5)AA
ANALYTE	ug/kg
2,4-DINITROTOLUENE	280 J
BENZO(A)ANTHRACENE	88 J
BENZO(A)PYRENE	82 J
BENZO(B)FLUORANTHENE	88 J
BENZO(G,H,I)PERYLENE	43 J
BENZO(K)FLUORANTHENE	90 J
BIS(2-ETHYLHEXYL) PH	32 J
CHRYSENE	99 J
DI-N-BUTYL PHTHALATE	470
DIBENZ(A,H)ANTHRACEN	23 J
FLUORANTHENE	180 J
INDENO(1,2,3-C,D)PYR	40 J
N-NITROSODIPHENYLAMI	27 J
PHENANTHRENE	93 J
PYRENE	160 J

GHA	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
2,4-DINITROTOLUENE	100 J	
BIS(2-ETHYLHEXYL) PH		170 J
CHRYSENE		23 J
DI-N-BUTYL PHTHALATE	240 J	

GHO	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	110 J

GHK	(0.0-0.5)AA
ANALYTE	ug/kg
2,4-DINITROTOLUENE	82 J
DI-N-BUTYL PHTHALATE	180 J

GHC	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	22 J	21 J	21 J

GHJ	(0.0-0.5)AA
ANALYTE	ug/kg
2,4-DINITROTOLUENE	280 J
DI-N-BUTYL PHTHALATE	800
N-NITROSODIPHENYLAMI	42 J

GHM	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
2,4-DINITROTOLUENE	600	
2,6-DINITROTOLUENE	29 J	
BIS(2-ETHYLHEXYL) PH		240 J
DI-N-BUTYL PHTHALATE	1100 J	
N-NITROSODIPHENYLAMI	110 J	

GHI	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	59 J

GHF	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	48 J

GHE	(0.0-0.5)AA
ANALYTE	ug/kg
PHENOL	31 J

GHO	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	37 J

/coha/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR164

MMR Groundwater Study

277 300 277 400 277 500 277 600 277 700 277 800

833 800 833 700 833 600 833 500

Gaudet Road

Jefferson Road

Canal View Road

45

GP-16

GHA	(1.5-2.0)BA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.2 J
DDT (1,1-BIS(CHLOROP	4.4 J
PCB-1254 (AROCHLOR 1	48
PCB-1260 (AROCHLOR 1	25 J

GHC	(1.5-2.0)BA
ANALYTE	ug/Kg
MCPP	26000 J

GHJ	(0.0-0.5)AA
ANALYTE	ug/kg
MCPP	10000 J

GHN	(1.5-2.0)BA
ANALYTE	ug/kg
MCPA	6700 NJ
MCPP	52000

control grids

GHO GHN GHA GHB GHC GHD GHE GHF GHG GHH GHI GHJ GHK GHL GHM

FIRING DIRECTION

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GHA — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 16

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
16-5

/oahu/mmrdata/mmr/rpatial/ogden/amls/qd_mmr.aml map MMR165

DRAFT

MMR Groundwater Study

278 500 278 600 278 700 278 800 278 900 279 000 279 100 279 200

827 100 827 000 826 900 826 800 826 700 826 600

Pocasset Forestdale Road

Mitton Road

45

control grids

GMM

GMN

FIRING DIRECTION

GP-7

GMA GMB GMC GMD GME GMF GMG GMH GMI GMJ GMK GML

GML	(0.0-0.5)AA
ANALYTE	ug/kg
2,4-DINITROTOLUENE	1300 J

30

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GML Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SOIL SAMPLES Area 17

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE

17-1

/oshu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR171

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GMA Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

GMA	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	5.3	
CHROMIUM, TOTAL	10.2	
COPPER	4.9	
LEAD		10.3
MANGANESE	44.7 J	
MOLYBDENUM	0.47 J	0.65 J
NITRATE/NITRITE (AS	0.17 J	
NITROGEN, AMMONIA (A		4.8 J
PHOSPHORUS, TOTAL OR	144 J	
ZINC	17.5 J	

GMB	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	4.3 J	
COBALT	2.4	
COPPER	6.9	
MANGANESE	35.8	
MOLYBDENUM	1.1	0.44 J
NITROGEN, AMMONIA (A		3.3 J

GMC	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	1.1 J	
BERYLLIUM		0.32
BORON	4.8 J	
CHROMIUM, TOTAL	11.6	
COBALT	2.3	
COPPER	5.6	
MANGANESE	30.5	
MOLYBDENUM	0.84	
PHOSPHORUS, TOTAL OR	132 J	

GMD	(0.0-0.5)AA	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg
BORON	5.8 J		
MANGANESE	34.6 J		
MOLYBDENUM	0.5 J	0.46 J	0.46 J
NITRATE/NITRITE (AS	0.18 J		
NITROGEN, AMMONIA (A		3.5 J	3.2 J
THALLIUM	1.8 J		

GMM	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
NITROGEN, AMMONIA (A		5.1 J
PHOSPHORUS, TOTAL OR	122	
POTASSIUM	273	

GMF	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.69 J	
COBALT	3.1	
COPPER	4.4	3.8
MANGANESE	43 J	39.7 J
MOLYBDENUM		0.58 J
THALLIUM		1.3 J

GME	(0.0-0.5)AA
ANALYTE	mg/kg
ANTIMONY	0.72 J
BORON	4.5 J
COBALT	2.4
COPPER	5.4
LEAD	22.8 J
MANGANESE	48.2 J
MOLYBDENUM	0.38 J
NITRATE/NITRITE (AS	0.14
POTASSIUM	316

GMH	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	5.0 J	
COPPER	4.6	
MAGNESIUM	1060	
MANGANESE	46.7 J	
NITRATE/NITRITE (AS	0.21 J	0.07 J
POTASSIUM	313	

GMN	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MOLYBDENUM		0.41 J
PHOSPHORUS, TOTAL OR	134	
SELENIUM	1.2 J	

GMG	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	3.4 J	
COBALT	2.9	
COPPER	6.5	
MANGANESE	48.8 J	
NITRATE/NITRITE (AS	0.12 J	0.09 J

GMI	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.69 J	
BORON	4.8 J	0.87
COBALT	2.6	
COPPER	3.5	
LEAD	27.5 J	
MANGANESE	72.1 J	
MERCURY	0.06 J	
MOLYBDENUM	0.75	0.33 J
NITRATE/NITRITE (AS	0.19	0.09 J
NITROGEN, AMMONIA (A		4.2 J
PHOSPHORUS, TOTAL OR	128 J	303 J
POTASSIUM	410	

GMJ	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	4.8 J	
COBALT	3.3	
COPPER	5.4	
LEAD	28.4 J	
MAGNESIUM	1250	
MANGANESE	67.7 J	
MOLYBDENUM	0.48 J	0.76
NITRATE/NITRITE (AS	0.13	0.08
PHOSPHORUS, TOTAL OR		305
POTASSIUM	381	
THALLIUM	1.5 J	

GMK	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ANTIMONY	0.69 J	
BORON	3.8 J	
COPPER	7.0	
LEAD	162 J	12.1
MANGANESE	38.5 J	
MOLYBDENUM	0.65 J	
NITRATE/NITRITE (AS	0.37 J	0.11 J
NITROGEN, AMMONIA (A		3.0 J
THALLIUM	1.3 J	

GML	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	2.5 J	
COPPER	5.2	
LEAD	18.4 J	
MANGANESE	44.7 J	
MOLYBDENUM	0.42 J	
NITRATE/NITRITE (AS		0.08 J

Pocasset Forestdale

Mitton Road

control grids

FIRING DIRECTION

GP-7

GMA GMB GMC GMD GME GMF GMG GMH GMI GMJ GMK GML GMM GMN

45 30

278 500 278 600 278 700 278 800 278 900 279 000 279 100 279 200

827 100 827 000 826 900 826 800 826 700 826 600

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 17

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
17-2

/oshu/mmrdata/mmr/spatial/ogden/aml/qd_mmr.aml map MMR172

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GMB Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 17

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
17-3

DRAFT

GMB	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	32 J

GMC	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	16 J

GMF	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
ACETONE	13 J	28 J

GMI	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	14 J

GMJ	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	38 J	9.0 J

/oahu/mmrdata/mmr/spatial/ogden/arals/qd_mmr.aml map MMR173

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GMB Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

GMB	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	100 J

GMF	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
2,4-DINITROTOLUENE	460	150 J
2,6-DINITROTOLUENE	28 J	
DI-N-BUTYL PHTHALATE	960 J	210 J
N-NITROSODIPHENYLAMI	43 J	

GME	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	220 J

GMN	(0.0-0.5)AD
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	27 J

GML	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	50 J

GMJ	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	85 J
DI-N-BUTYL PHTHALATE	130 J

GMK	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
2,4-DINITROTOLUENE		120 J
DI-N-BUTYL PHTHALATE	140 J	260 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA66GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA66GIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES Area 17

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
17-4

DRAFT

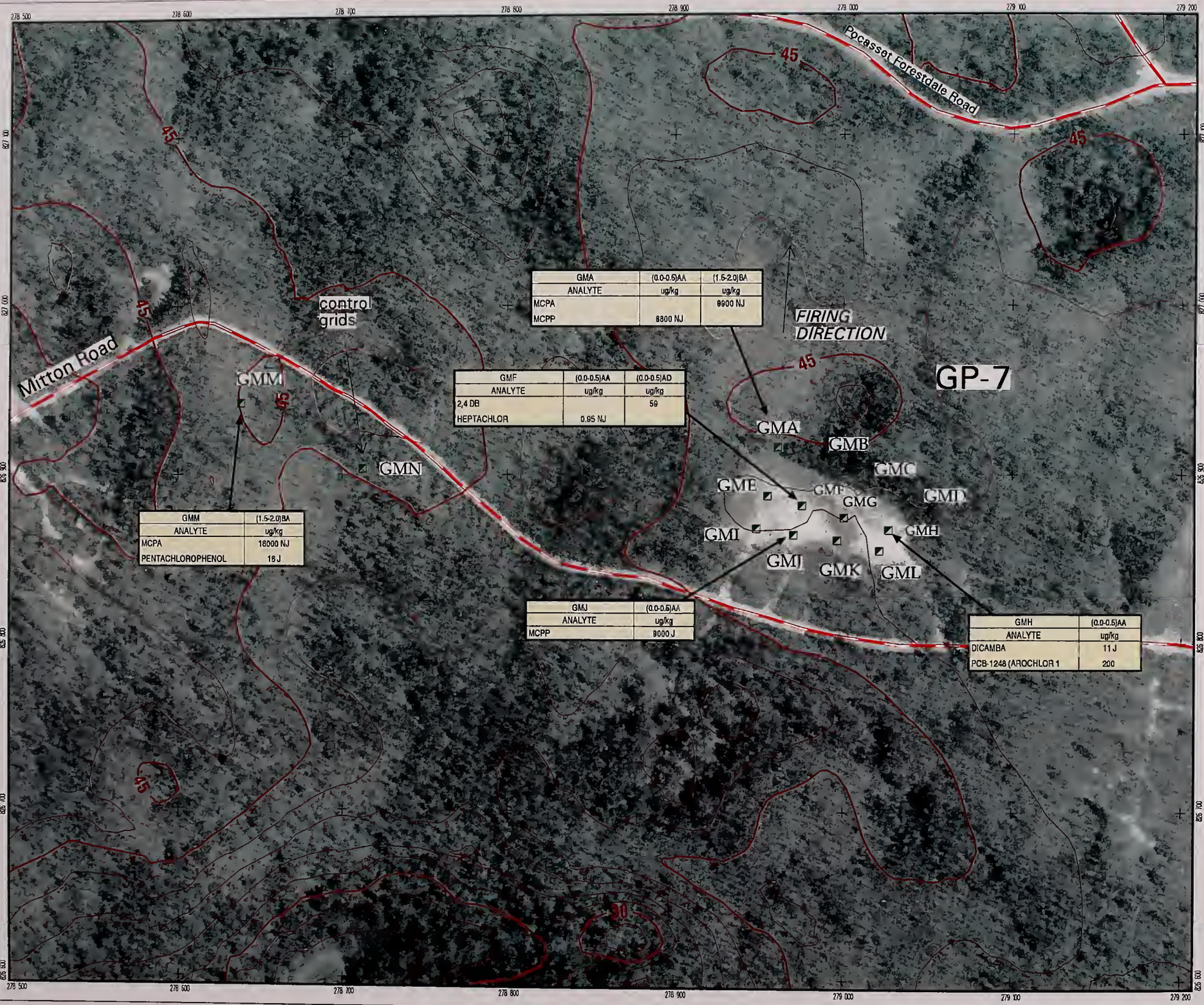
/cmm/mmrdata/mmr/sparrel/ogden/arcls/qd_mmr.aml map MMR174

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GMA — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet



GMA	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
MCPA		9900 NJ
MCPP	8800 NJ	

GMF	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
2,4 DB		59
HEPTACHLOR	0.95 NJ	

GMM	(1.5-2.0)BA
ANALYTE	ug/kg
MCPA	16000 NJ
PENTACHLOROPHENOL	16 J

GMJ	(0.0-0.5)AA
ANALYTE	ug/kg
MCPP	9000 J

GMH	(0.0-0.5)AA
ANALYTE	ug/kg
DICAMBA	11 J
PCB-1248 (AROCHLOR 1	200

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Data Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Area 17

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
17-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR175

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GLA Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

GLA	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	2.5 J	
MOLYBDENUM	0.32 J	
NITRATE/NITRITE (AS	0.21	0.1

GLB	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	2.7 J	
MOLYBDENUM	0.51 J	
NITRATE/NITRITE (AS	0.13	0.05
THALLIUM		1.5 J

GLI	(1.5-2.0)BA
ANALYTE	mg/kg
MOLYBDENUM	0.53 J
NITRATE/NITRITE (AS	0.34
NITROGEN, AMMONIA (A	3.3 J

GLD	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	3.1 J	
MANGANESE	28.2 J	
MOLYBDENUM	0.5 J	0.62 J
NITRATE/NITRITE (AS	0.18	0.17
NITROGEN, AMMONIA (A		4.5 J

GLC	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	2.7 J	
MOLYBDENUM	0.27 J	
NITRATE/NITRITE (AS		0.11 J

GLE	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
LEAD	21.8 J	6.8
MANGANESE	27.3 J	
NITRATE/NITRITE (AS	0.11 J	0.08 J

OLG	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MOLYBDENUM	0.51 J	0.56 J
NITRATE/NITRITE (AS	0.12	
SELENIUM		1.0 J

GLF	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
MOLYBDENUM	0.61 J	0.59
NICKEL		16.6
NITROGEN, AMMONIA (A		3.8 J

GLH	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
BORON	1.9	
MOLYBDENUM	0.6 J	0.67
NITROGEN, AMMONIA (A		6.0 J

GP-18

control grid

Flatrock Road

GLA GLB GLC GLD GLE GLF GLG GLH GLI

Gibbs Road

Maston Road

FIRING DIRECTION

75

279 200 279 300 279 400 279 500 279 600

834 400 834 300 834 200 834 100 834 000

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Area 18

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
18-2

/oahu/mmrdata/mmr/spatial/ogden/smle/qd_mmr.aml map MMR182

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GLA Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

GLB	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	4.0 J
METHYLENE CHLORIDE	1.0 J
TETRACHLOROETHYLENE(	2.0 J

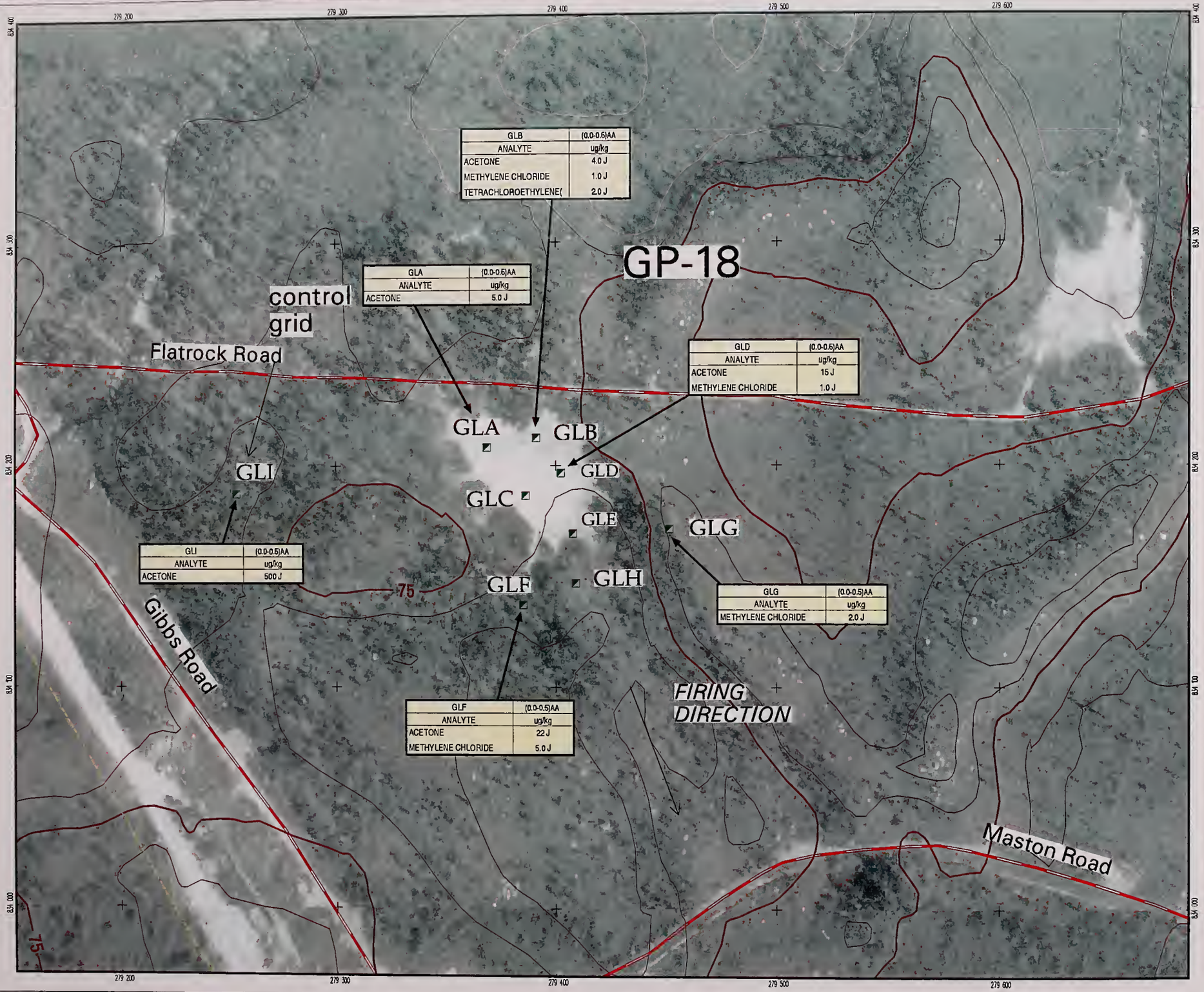
GLA	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	5.0 J

GLD	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	15 J
METHYLENE CHLORIDE	1.0 J

GLI	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	500 J

GLG	(0.0-0.5)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	2.0 J

GLF	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	22 J
METHYLENE CHLORIDE	5.0 J



BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES Area 18

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
18-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR183

DRAFT

279 200 279 300 279 400 279 500 279 600

834 400 834 300 834 200 834 100 834 000

GP-18

control grid

Flatrock Road

GLD	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N-BUTYL PHTHALATE	150 J

GLA GLB GLD GLI GLC GLE GLG GLF GLH

GLC	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	140 J
DI-N-BUTYL PHTHALATE	82 J

GLE	(0.0-0.5)AA
ANALYTE	ug/kg
DI-N BUTYL PHTHALATE	41 J

GLH	(0.0-0.5)AA
ANALYTE	ug/kg
DIETHYL PHTHALATE	18 J

Gibbs Road

FIRING DIRECTION

Maston Road

75

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GLC — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA&EGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA&EGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Area 18

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE

18-4

/oahu/mmrdata/mmr/spatial/ogden/arnls/qd_mmr.aml map MMR184

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- GLD — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGI6; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGI6

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES
Area 18

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
18-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR185

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- M3A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA&EGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA&EGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SOIL SAMPLES
Areas 19-22

N

0 550
0 FEET 168
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/29/98							

FIGURE
19-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR192

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- M3A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

M8A	(0.0-0.5)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	1.0 J
TCE	1.0 J

M8A	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	14

M8C	(0.0-0.5)AA
ANALYTE	ug/kg
TCE	2.0 J
TETRACHLOROETHYLENE(	1.0 J

M8B	(0.0-0.5)AA
ANALYTE	ug/kg
TCE	2.0 J

M6C	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
METHYLENE CHLORIDE	2.0 J	1.0 J
TCE		1.0 J

M6B	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	21

M5E	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	26

OPD	(0.0-0.5)AA
ANALYTE	ug/kg
CHLOROFORM	11 J

M5D	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	17

M3D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
ACETONE	23 J	81

M3A	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	7.0 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA&SGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA&SGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SOIL SAMPLES
Areas 19-22

N

0 550
FEET
0 168
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
19-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR193

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- M3A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

M8A (0.0-0.5)AA

ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	18 J
DIETHYL PHTHALATE	25 J

M8C (0.0-0.6)AD (1.5-2.0)BA

ANALYTE	ug/kg	ug/kg
CHRYSENE	18 J	
DIETHYL PHTHALATE		17 J
FLUORANTHENE	27 J	
PHENANTHRENE	19 J	
PYRENE	18 J	

OPD (0.0-0.5)AA

ANALYTE	ug/kg
BENZO(B)FLUORANTHENE	32 J
BIS(2-ETHYLHEXYL) PH	17 J
CHRYSENE	33 J
FLUORANTHENE	48 J
PHENANTHRENE	28 J
PYRENE	25 J

M6A (0.0-0.6)AA (1.5-2.0)BD

ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH		28 J
DIETHYL PHTHALATE	40 J	

M6B (0.0-0.6)AA

ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	48 J

M6C (0.0-0.5)AA (0.0-0.5)AD

ANALYTE	ug/kg	ug/kg
DIETHYL PHTHALATE	77 J	350 J

OPC (0.0-0.5)AA

ANALYTE	ug/kg
PYRENE	88 J

M5B (0.0-0.5)AA

ANALYTE	ug/kg
DIETHYL PHTHALATE	74 J

OPA (0.0-0.5)AA

ANALYTE	ug/kg
FLUORANTHENE	20 J
PYRENE	25 J

M3D (0.0-0.5)AA

ANALYTE	ug/kg
DIETHYL PHTHALATE	24 J

M3B (0.0-0.5)AA

ANALYTE	ug/kg
FLUORANTHENE	22 J
PYRENE	25 J

M3A (0.0-0.5)AA

ANALYTE	ug/kg
PYRENE	20 J

M3E (0.0-0.5)AA

ANALYTE	ug/kg
CHRYSENE	45 J
FLUORANTHENE	41 J
PHENANTHRENE	48 J
PYRENE	40 J

M3C (0.0-0.6)AA (1.5-2.0)BA

ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH		32 J
DIETHYL PHTHALATE	28 J	

MW15 MW21 MP-8 MP-6 MP-5 MP-3 OP 5 OP 6 OP 7 Succonsette Pond Wheelock Road Spring & Kawaa Road Pond Road FIRING DIRECTION

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SOIL SAMPLES
Areas 19-22

N

0 550
FEET
0 168
METERS

DATE	REV.	DRWN	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
19-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/aml/qd_mmr.aml map MMR194

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Soil Borings/Groundwater Wells
- M3B — Location Identifier
- ug/kg — Micrograms Per Kilogram
- J — Estimated Quantity
- NJ — Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

M6A	(0.0-0.5)AA
ANALYTE	ug/kg
DICAMBA	6.6 NJ
PENTACHLOROPHENOL	16 J

OPD	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	8.3
DDT (1,1-BIS(CHLOROP	30

M3B	(0.0-0.5)AA
ANALYTE	ug/kg
PICLORAM	11 J

M3C	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	11 NJ

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SOIL SAMPLES Areas 19-22

0 550
FEET
0 168
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
19-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR195

MMR Groundwater Study

278 700 278 800 278 900 279 000 279 100 279 200 279 300

829 300 829 200 829 100 829 000 828 900 828 800

MW15

30

45

08A 08B 08C 08D 08E

Pocasset Sandwich Road

D08A - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BERYLLIUM	0.06 J
CADMIUM	0.1 J
NICKEL	1.0 J

D08C - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
CADMIUM	0.09 J
COPPER	8.5

P08A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
CHROMIUM, TOTAL	1.3 J
MOLYBDENUM	2.2 J
NICKEL	2.3 J
VANADIUM	1.9 J

D08B - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
ARSENIC	1.0 J
BERYLLIUM	0.14
COBALT	0.92
NICKEL	2.4
ZINC	9.8

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D08A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 8: Succonsette Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
8-2b

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR882

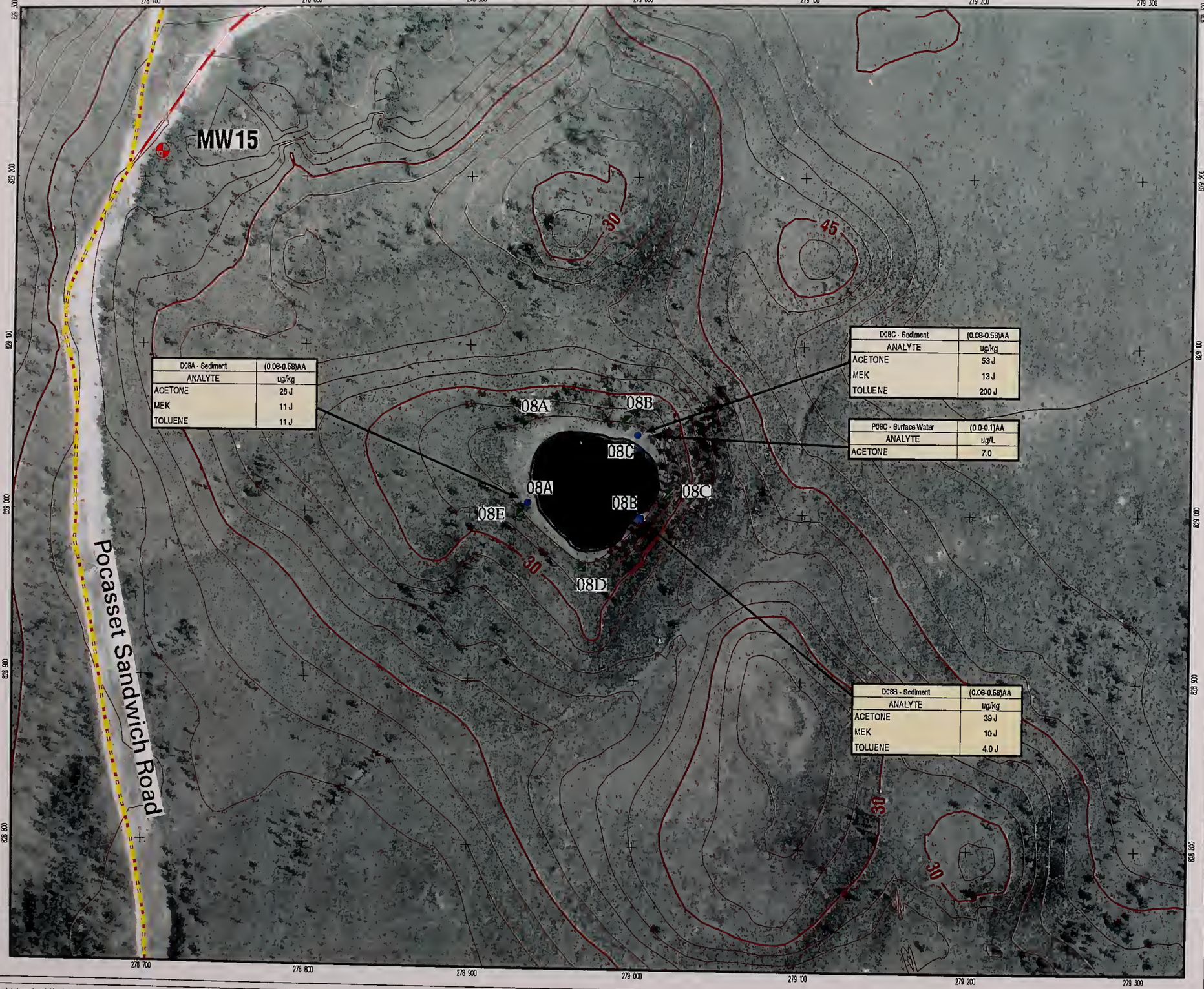
DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D08A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet



D08A - Sediment	(0.08-0.68)AA
ANALYTE	ug/kg
ACETONE	28 J
MEK	11 J
TOLUENE	11 J

D08C - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
ACETONE	53 J
MEK	13 J
TOLUENE	200 J

P08C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	7.0

D08B - Sediment	(0.08-0.68)AA
ANALYTE	ug/kg
ACETONE	39 J
MEK	10 J
TOLUENE	4.0 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6&GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6&GIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 8: Succonsette Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
8-3b

/oahu/mmrdata/mmr/spatial/ogden/aml's/qd_mmr.aml map MMR883

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D08A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 8: Succonsette Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
8-4b

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR884

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D08A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES Area 8: Succonsette Pond

D08A - Sediment	(0.09-0.58)AA
ANALYTE	ug/kg
MCPA	12000 NJ

D08C - Sediment	(0.09-0.58)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	30
DDE (1,1-BIS(CHLOROP	21
DDT (1,1-BIS(CHLOROP	860

D08B - Sediment	(0.09-0.58)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	4.7 J
DDE (1,1-BIS(CHLOROP	5.1

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
8-5b

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR885

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D23B Location Identifier
- ug/kg Micrograms Per Kilogram
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF EXPLOSIVES IN SURFACE WATER/SEDIMENT SAMPLES
Area 23: J-3 Wetland

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
23-1

DRAFT

/cshd/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR231

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D23A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D23A - Sediment	(0.25-0.75)AA
ANALYTE	mg/kg
BERYLLIUM	0.26 J
COPPER	9.0 J
NICKEL	2.8 J
PHOSPHORUS, TOTAL OR	575 J
ZINC	10.3 J

P23A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
COPPER	3.9 J
NICKEL	3.8 J
SILVER	3.0 J

D23C - Sediment	(0.08-0.68)AA
ANALYTE	mg/kg
ARSENIC	1.7 J
BARIUM	40.9 J
COPPER	73 J
LEAD	82.1 J
NICKEL	2.6 J
ZINC	23.6 J

P23B - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
COPPER	2.5 J	2.6 J
MANGANESE	82.1	83.4
NICKEL	5.8	
SILVER		2.2 J

P23C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
COPPER	4.0 J
SILVER	2.2 J

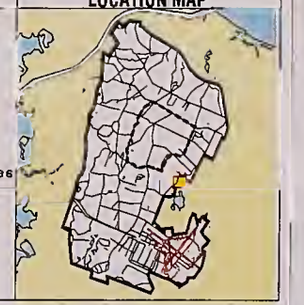
D23B - Sediment	(0.6-0.6)AA	(0.5-1.0)AD
ANALYTE	mg/kg	mg/kg
COBALT	0.87 J	1.1 J
COPPER	31.2	23.6
MANGANESE	91.1	76.3
MOLYBDENUM		0.76 J
POTASSIUM	113 J	129 J
ZINC	142	154

FS12-90WT0004
FS12-90MW0041
FS12-90MW0022
FS12-90WT0005
FS12-90MW0070
FS12-90MW0071
FS12-90MW0003
23A
23B
23C
Greenway Road
30
45

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 23: J-3 Wetland

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
23-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR232

DRAFT

MMR Groundwater Study

FS12-90WT0004

FS12-90MW0041

FS12-90MW0022

Greenway Road

30

45

23A

23B

23C

FS12-90WT0005

FS12-90MW0070

FS12-90MW0071

FS12-90MW0003

D23B - Sediment	(0.5-0.5)AA	(0.5-1.0)AD
ANALYTE	ug/kg	ug/kg
ACETONE	54 J	66 J
METHYLENE CHLORIDE		2.0 J
TOLUENE	5.0 J	5.0 J

P23B - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
ACETONE	6.0 J	6.0 J

D23A - Sediment	(0.25-0.75)AA
ANALYTE	ug/kg
TOLUENE	18 J

P23A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	6.0 J

P23C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	6.0 J

LEGEND

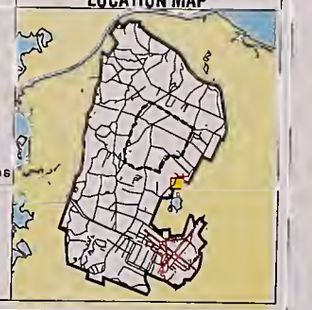
- Surface Water/Sediment Samples
- Groundwater Wells
- D23A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 23: J-3 Wetland

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
23-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr arcl map MMR233

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D23B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

FS12-90WT0004
FS12-90MW0041
FS12-90MW0022
30
Greenway Road
23A
23B
23C
45
FS12-90WT0005
FS12-90MW0070
FS12-90MW0071
FS12-90MW0003

D23B - Sediment	(0.5-0.5)AA	(0.5-1.0)AD
ANALYTE	ug/kg	ug/kg
DI-N-BUTYL PHTHALATE	37 J	33 J
N-NITROSODIPHENYLAMI	160 J	240 J

281 300 281 400 281 500 281 600 281 700 281 800 281 900
827 600 827 500 827 400 827 300 827 200 827 100

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 23: J-3 Wetland

N

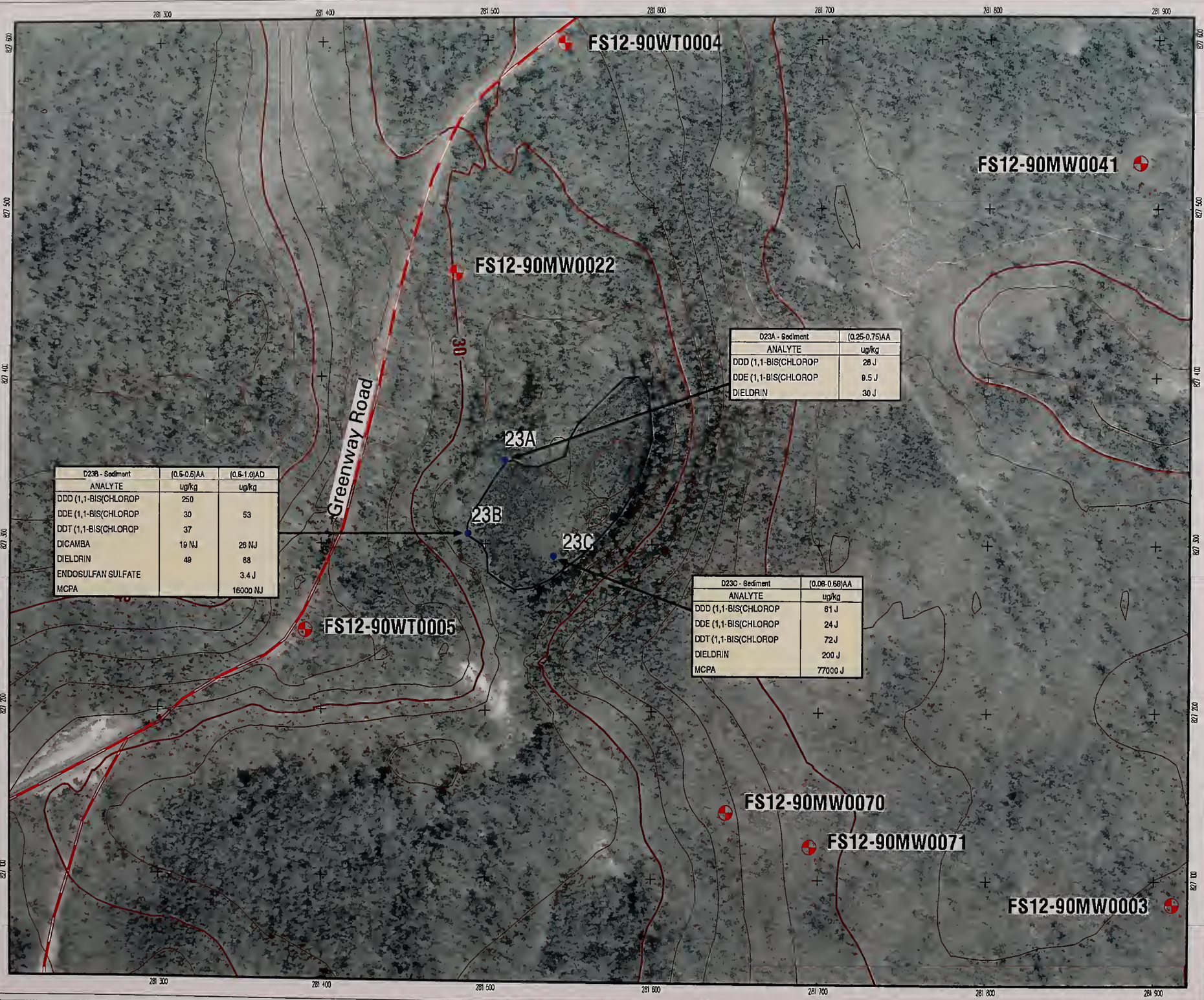
0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
23-4

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR234

DRAFT



D23A - Sediment	(0.25-0.75)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	28 J
DDE (1,1-BIS(CHLOROP	9.5 J
DIELDRIN	30 J

D23B - Sediment	(0.5-0.5)AA	(0.5-1.0)AD
ANALYTE	ug/kg	ug/kg
DDD (1,1-BIS(CHLOROP	250	
DDE (1,1-BIS(CHLOROP	30	53
DDT (1,1-BIS(CHLOROP	37	
DICAMBA	19 NJ	26 NJ
DIELDRIN	49	88
ENDOSULFAN SULFATE		3.4 J
MCPA		16000 NJ

D23C - Sediment	(0.06-0.68)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	61 J
DDE (1,1-BIS(CHLOROP	24 J
DDT (1,1-BIS(CHLOROP	72 J
DIELDRIN	200 J
MCPA	77000 J

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D23A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 23: J-3 Wetland

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
23-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR235

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D25A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L
IMAGE DATE: 1997
All sample depth measurements are in feet

D25A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
CADMIUM	0.15 J
COBALT	0.72 J
COPPER	16.9
LEAD	33.9 J
MERCURY	0.22
NICKEL	0.91 J
SILVER	0.75 J
ZINC	15.4 J

P25A - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
LEAD	3.2 J
NITROGEN, AMMONIA (A	0.42 J

P25B - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
ALUMINUM	288	293
BARIUM	4.3 J	4.2 J
BORON	13.1 J	13.1 J
LEAD		3.1 J
THALLIUM		8.5 J
VANADIUM	2.5 J	2.6 J
ZINC	13.7	13.7

D25B - Sediment	(0.17-0.67)AA	(0.17-0.67)AD
ANALYTE	mg/kg	mg/kg
CADMIUM		0.34 J
COBALT		1.8 J
COPPER		5.1 J
LEAD		38.6 J
NICKEL		2.5 J
NITROGEN, AMMONIA (A	2600 J	
SILVER		1.9 J
ZINC	14.4 J	29 J

D25C - Sediment	(0.17-0.67)AA
ANALYTE	mg/kg
CADMIUM	0.1 J
COBALT	0.69 J
NICKEL	0.73 J
ZINC	18.6 J

P25C - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
NITROGEN, AMMONIA (A	0.24
ZINC	13.6

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Data Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 25: Rod & Gun Club North Pond

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
25-2

DRAFT

/oshu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR252

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D25A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

025A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	200 J
TOLUENE	200 J

P25A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	4.0 J

025B - Sediment	(0.17-0.67)AA	(0.17-0.67)AD
ANALYTE	ug/kg	ug/kg
ACETONE	340 J	210 J
MEK	59 J	
METHYLENE CHLORIDE	4.0 J	2.0 J
TOLUENE	280 J	270

P25B - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
ACETONE	6.0	6.0
TOLUENE	0.3 J	0.2 J

D25C - Sediment	(0.17-0.67)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	2.0 J
TOLUENE	3.0 J

P25C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	6.0

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES Area 25: Rod & Gun Club North Pond

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
25-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR253

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D25A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D25A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	21 J
FLUORANTHENE	25 J

D25B - Sediment	(0.17-0.67)AD
ANALYTE	ug/kg
2-METHYLPHENOL (O-CR	50 J
4-METHYLPHENOL (P-CR	230 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 25: Rod & Gun Club North Pond

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
25-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR254

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D25A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

95-14

25A

25B

25C

MW24

LRWS10-1

Route 28

Fredrikson Road

Estey Road

D25A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	120 J
DDE (1,1-BIS(CHLOROP	37
DDT (1,1-BIS(CHLOROP	40

D25C - Sediment	(0.17-0.67)AA
ANALYTE	ug/kg
MCPA	15000 J

D25B - Sediment	(0.17-0.67)AA	(0.17-0.67)AD
ANALYTE	ug/kg	ug/kg
MCPA	57000 J	31000 J

275 700 275 800 275 900 276 000 276 100 276 200 276 300 276 400

827 300 827 200 827 100 827 000 826 900 826 800 826 700 826 600

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 25: Rod & Gun Club North Pond

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
25-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR255

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D26A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 26: Cranberry Bog & Deep Bottom Pond

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
26-2

DRAFT

P26G - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
COPPER	2.5 J
MANGANESE	89.2
MERCURY	0.2 J
VANADIUM	2.4 J

D26F - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
BERYLLIUM	0.15
COBALT	0.68 J
MOLYBDENUM	0.48 J
NICKEL	1.6
POTASSIUM	106 J
ZINC	6.8 J

D26G - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ARSENIC	2.6 J
BERYLLIUM	0.23 J
COBALT	1.5 J
COPPER	5.8 J
IRON	6500 J
MANGANESE	59.6 J
MOLYBDENUM	0.72
NICKEL	4.3 J
POTASSIUM	161 J
ZINC	9.7 J

P26F - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
CADMIUM	0.31 J
COPPER	2.6 J

D26C - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ARSENIC	1.3 J
BERYLLIUM	0.08
COBALT	0.94
MOLYBDENUM	0.41 J
NICKEL	1.3
ZINC	9.8

D26E - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
BARIUM	81.4 J
BERYLLIUM	0.36 J
COBALT	1.5 J
COPPER	8.5 J
IRON	5950 J
MANGANESE	62.6 J
MOLYBDENUM	1.3 J
NICKEL	5.2 J
POTASSIUM	237 J
ZINC	11.4 J

P26C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
IRON	1170

P26E - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALUMINUM	288
BARIUM	8.2 J
COPPER	2.5 J
LEAD	3.5
MANGANESE	107
VANADIUM	3.6

D26D - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
ARSENIC	1.5 J
COBALT	1.7
MANGANESE	25.9 J
NICKEL	2.8 J
POTASSIUM	152 J
ZINC	8.9

D26B - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
ARSENIC	1.3 J
COBALT	0.65
MOLYBDENUM	0.29 J
NICKEL	1.3 J
POTASSIUM	82.8 J
ZINC	4.3

P26D - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
CADMIUM	0.34 J
CHROMIUM, TOTAL	2.9
COBALT	3.3 J
COPPER	4.1 J
MANGANESE	226
NICKEL	2.6 J
SILVER	3.7
THALLIUM	10 J
VANADIUM	2.3

P26B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	4.4 J
COBALT	2.2 J
IRON	3540
MANGANESE	227

D26A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	22200
ARSENIC	5.7
BARIUM	36.9
BERYLLIUM	0.8
CHROMIUM, TOTAL	19.7 J
COBALT	7.1
COPPER	10.3 J
IRON	21900 J
MAGNESIUM	2390
MANGANESE	141 J
MOLYBDENUM	1.1 J
NICKEL	12.2 J
POTASSIUM	662
VANADIUM	34.8
ZINC	34

P26A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	5.6 J
COBALT	2.8 J
COPPER	2.5 J
IRON	1880
MANGANESE	390

D26H - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
BERYLLIUM	0.08
COBALT	0.44 J
MOLYBDENUM	0.31 J
NICKEL	0.85
POTASSIUM	110 J
ZINC	3.6 J

/oahu/mmrdata/mmr/spatial/ogden/aml/rjd_mmr.aml map MMR262

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D26A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D28F - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
MEK	71 J
TOLUENE	22 J

D26E - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	180 J
MEK	61 J
TOLUENE	5.0 J

P26E - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
CHLOROFORM	0.6 J
TOLUENE	0.3 J

D26B - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
ACETONE	53 J
TOLUENE	18

P26B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	9.0 J

D26C - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	23 J

P26C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	7.0 J

D26A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	250 J
CARBON DISULFIDE	3.0 J
MEK	44 J

D26D - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
ACETONE	160 J
CARBON DISULFIDE	7.0 J
TOLUENE	8.0 J

P26D - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	7.0 J

956
Deep Bottom Pond Road
Canal View Road
26F
26G
26E
26B
26C
26D
26A
26H
30
45
0

276 900 277 000 277 100 277 200 277 300 277 400 277 500 277 600
832 200 832 100 832 000 831 900 831 800 831 700

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MAGSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MAGSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 26: Cranberry Bog & Deep Bottom Pond

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
26-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR263

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D26A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 26: Cranberry Bog & Deep Bottom Pond

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
26-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR264

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D26A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D29G - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	5.4 J
MCPA	39000 J

D26F - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	3.5 J

D26E - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	12 J
MCPA	65000 J

P26B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
DDT (1,1-BIS(CHLOROP	0.04 J
ENDRIN ALDEHYDE	0.04
HEPTACHLOR	0.01 J
PCB-1260 (AROCHLOR 1	0.64

D26C - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	2.7 J

D26A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	4.9
DDE (1,1-BIS(CHLOROP	4.7 J
DOT (1,1-BIS(CHLOROP	3.3 J
DIELDRIN	2.8 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES Area 26: Cranberry Bog & Deep Bottom Pond

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
26-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR265

DRAFT

MMR Groundwater Study

279 000 279 100 279 200 279 300 279 400 279 500 279 600

832 500 832 400 832 300 832 200 832 100 832 000

Jefferson Road

Burgoyne Road

60

27A

27B

27C

D27A - Sediment	(0.17-0.58)AA
ANALYTE	mg/kg
BARIUM	36.3 J
BERYLLIUM	0.1 J
CADMIUM	0.24 J
COPPER	7.9 J
MERCURY	0.22 J
NICKEL	1.9 J
PHOSPHORUS, TOTAL OR	397 J
SELENIUM	4.3 J

P27A - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	805 J
BARIUM	13.3
COPPER	4.2 J
IRON	1460
MANGANESE	106
NICKEL	4.0 J
NITROGEN, AMMONIA (A	0.11 J
PHOSPHORUS, TOTAL OR	0.17
VANADIUM	7.9

D27B - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
BARIUM	68.7 J
BERYLLIUM	0.14 J
CADMIUM	0.37 J
COBALT	2.2 J
COPPER	9.8 J
MANGANESE	50.1 J
MERCURY	0.22 J
NICKEL	3.6 J
ZINC	33.2 J

P27B - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	1200 J
ARSENIC	4.1 J
BARIUM	22.3
CHROMIUM, TOTAL	2.2 J
COBALT	3.5
COPPER	5.4
IRON	7420
MANGANESE	222
NICKEL	7.0
PHOSPHORUS, TOTAL OR	0.38
SULFATE (AS SO4)	8.4
VANADIUM	13.8
ZINC	52

D27C - Sediment	(0.0-0.25)AA
ANALYTE	mg/kg
ARSENIC	2.8
BARIUM	61.4
COBALT	1.6
COPPER	5.7
IRON	11500 J
MANGANESE	2840 J
MOLYBDENUM	2.7
NICKEL	2.8
SELENIUM	1.3 J
ZINC	23.9

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D27A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L

IMAGE DATE: 1997

All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 27: Round Swamp

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
27-2

DRAFT

/cnhw/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR272

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D27A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

P27A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	11

D27A - Sediment	(0.17-0.58)AA
ANALYTE	ug/kg
ACETONE	97 J
MEK	40 J
TOLUENE	12 J

P27B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	13
TOLUENE	2.0

D27B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	250 J
MEK	98 J

D27C - Sediment	(0.0-0.25)AA
ANALYTE	ug/kg
ACETONE	15 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MAGGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MAGGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 27: Round Swamp

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
27-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR273

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D27A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D27A - Sediment	(0.17-0.58)AA
ANALYTE	ug/kg
4-METHYLPHENOL (P-CR	110 J

P27A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
4-METHYLPHENOL (P-CR	10

P27B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
4-METHYLPHENOL (P-CR	7.0

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 27: Round Swamp

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
27-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR274

279 000 279 100 279 200 279 300 279 400 279 500 279 600

832 500 832 400 832 300 832 200 832 100 832 000

Jefferson Road

Burgoyne Road

60

P27B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
2,4 DB	1.0 NJ
DICAMBA	0.15 J
MCPP	200 J
SILVEX (2,4,5-TP)	0.1 NJ

D27A - Sediment	(0.17-0.58)AA
ANALYTE	ug/kg
PENTACHLOROPHENOL	26 J
SILVEX (2,4,5-TP)	21 NJ

D27B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	25 J
DDE (1,1-BIS(CHLOROP	18 J
DDT (1,1-BIS(CHLOROP	34 J

27A

27B

27C

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR275

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D27A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 27: Round Swamp

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
27-5

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D28A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6GIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES Area 28: Grassy Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
28-2

DRAFT

Gibbs Road

28A
28B
28C
28D

D28D - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
COBALT	2.0
MANGANESE	65.6 J
NICKEL	4.3
POTASSIUM	300
ZINC	50.1 J

D28A - Sediment	(0.08-0.58)AA	(0.08-0.58)AD
ANALYTE	mg/kg	mg/kg
ALUMINUM	26100 J	26100 J
ARSENIC	7.2 J	7.4 J
BARIUM	40.8 J	40.3
BERYLLIUM	0.6 J	0.57
CHROMIUM, TOTAL	29.1 J	28.3
COBALT	8.0 J	8.0
COPPER	16.5 J	15
IRON	22000 J	20300 J
LEAD	28.6 J	
MAGNESIUM	3080 J	3060
MANGANESE	122 J	122 J
MERCURY	0.11 J	0.11 J
MOLYBDENUM	2.2 J	
NICKEL	16.2 J	15.6
PHOSPHORUS, TOTAL	709 J	530
POTASSIUM	735 J	1020
SELENIUM		1.6 J
VANADIUM	49.3 J	50.3
ZINC	54 J	51.5 J

D28C - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BERYLLIUM	0.07 J
COBALT	0.84 J
COPPER	7.5
NICKEL	2.3
PHOSPHORUS, TOTAL OR	466
POTASSIUM	158 J

P28C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	4.6 J
MANGANESE	157
POTASSIUM	1720
ZINC	37.7

P28A - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
ALUMINUM	282	
BARIUM	5.4 J	4.3 J
IRON	962	
MANGANESE	108	80.2
POTASSIUM	1950	2000

P28B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALUMINUM	253
BARIUM	5.5 J
COPPER	3.0 J
IRON	1100
MANGANESE	168
NICKEL	2.5 J
POTASSIUM	2010
VANADIUM	2.3 J

D28B - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
COBALT	1.1
COPPER	6.2
MANGANESE	44.2 J
MERCURY	0.1 J
NICKEL	3.5
POTASSIUM	220
ZINC	16 J

281 800 281 900 282 000 282 100 282 200

831 700 831 600 831 500 831 400

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR282

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D28B Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 28: Grassy Pond

N

0 150
FEET
0 46
METERS

D28B - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	7.0 J

P28B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
MTBE	0.5

P28A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
MTBE	0.42 J

28D
28A
28C
28B
60
Gibbs Road

281 800 281 900 282 000 282 100 282 200
831 700 831 600 831 500 831 400

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
28-3

/oshu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR283

DRAFT

281 800 281 900 282 000 282 100 282 200

831 700 831 600 831 500 831 400

Gibbs Road

28D

28A

28C

28B

60

D28A - Sediment	(0.08-0.58)AA	(0.08-0.58)AD
ANALYTE	ug/kg	ug/kg
DI-N-BUTYL PHTHALATE	35 J	35 J

281 800 281 900 282 000 282 100 282 200

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR284

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D28A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 28: Grassy Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
28-4

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D28A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

Gibbs Road

28A
28B
28C
28D

D28A - Sediment	(0.08-0.58)AA	(0.09-0.59)AD
ANALYTE	ug/kg	ug/kg
DDD (1,1-BIS(CHLOROP	23 J	10 J
DDE (1,1-BIS(CHLOROP	31 J	18
DDT (1,1-BIS(CHLOROP	8.6 J	5.3 J
DIELDRIN	16 J	8.1

D28C - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	4.4 J
DDE (1,1-BIS(CHLOROP	4.9 J

P28A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
DDE (1,1-BIS(CHLOROP	0.01 J
PCB-1260 (AROCHLOR 1	0.21 J
SILVEX (2,4,5-TP)	0.1 NJ

D28B - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	5.3 J

P28B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALPHA BHC (ALPHA HEX	0.01 NJ
DDE (1,1-BIS(CHLOROP	0.01 J
ENDRIN	0.01 J
PCB-1260 (AROCHLOR 1	0.62 J

60

281 800 281 900 282 000 282 100 282 200
831 700 831 600 831 500 831 400

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA&GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA&GIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 28: Grassy Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
28-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR285

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D29A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L.

IMAGE DATE: 1997

All sample depth measurements are in feet

D29C - Sediment	(1.0-1.75)AA
ANALYTE	mg/kg
ALUMINUM	15300 J
BARIUM	173 J
BERYLLIUM	0.35 J
COBALT	1.4 J
COPPER	29 J
IRON	6840 J
MANGANESE	54.1 J
NICKEL	9.3 J
PHOSPHORUS, TOTAL OR	671 J
POTASSIUM	408 J
ZINC	49.7 J

P29C - Surface Water	(0.0-0.1)AA	
ANALYTE	mg/L	ug/L
BARIUM		5.7 J
LEAD		3.0 J
PHOSPHORUS, TOTAL OR	0.07	

D29B - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
BERYLLIUM	0.14 J
NICKEL	2.3
PHOSPHORUS, TOTAL OR	726 J
POTASSIUM	187

P29B - Surface Water	(0.0-0.1)AA	
ANALYTE	mg/L	ug/L
BARIUM		5.2 J
LEAD		2.3 J
PHOSPHORUS, TOTAL OR	0.1	

D29A - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BARIUM	79.8 J
BERYLLIUM	0.11 J
COPPER	11.5 J
NICKEL	3.3 J
PHOSPHORUS, TOTAL OR	463 J
POTASSIUM	187 J

P29A - Surface Water	(0.0-0.1)AA	
ANALYTE	mg/L	ug/L
BARIUM		8.2 J
LEAD		2.5 J
PHOSPHORUS, TOTAL OR	0.09	

29C
29B
29A
LRWS4-1
Jefferson Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 29: Ox Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
29-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR292

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D29A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D29C - Sediment	(1.0-1.75)AA
ANALYTE	ug/kg
ACETONE	180 J
MEK	40 J

P29C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
TOLUENE	3.0

D29B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	88 J
MEK	48 J

P29B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	10 J
TOLUENE	2.0

D29A - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
ACETONE	120 J
MEK	60 J

P29A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	10 J
TOLUENE	2.0

29C
29B
29A
LRWS4-1
Jefferson Road

282 800 282 900 283 000 283 100 283 200 283 300 283 400
830 700 830 600 830 500 830 400 830 300

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 29: Ox Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
29-3

/oshu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR293

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D29A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES Area 29: Ox Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
29-4

DRAFT

/oabit/mmrdata/mmr/spatial/ogden/aml/qd_mmr.aml map MMR294

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D29C Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D29C - Sediment	(1.0-1.75)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	30 J
DDE (1,1-BIS(CHLOROP	8.9 J
MCPA	24000 J

P29C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
SILVEX (2,4,5-TP)	0.11 J

29C
29B
29A
LRWS4-1
Jefferson Road
3 0

282 800 282 900 283 000 283 100 283 200 283 300 283 400
830 700 830 600 830 500 830 400 830 300

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6SGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6SGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES Area 29: Ox Pond

N

0 200
0 FEET 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
29-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR295

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D30A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L
IMAGE DATE: 1997
All sample depth measurements are in feet

D30C - Sediment	(0.13-0.67)AA
ANALYTE	mg/kg
BERYLLIUM	0.06
MERCURY	0.06 J
NICKEL	0.7 J

P30C - Surface Water	(0.0-0.1)AA	
ANALYTE	mg/L	ug/L
BARIUM		7.7 J
IRON		1600
NITROGEN, AMMONIA (A		0.22
PHOSPHORUS, TOTAL OR		0.07
VANADIUM		1.9 J

D30B - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ARSENIC	2.4
BERYLLIUM	0.19
COBALT	2.1
IRON	6970
MANGANESE	37.5 J
NICKEL	3.6
POTASSIUM	254
ZINC	11.2

P30B - Surface Water	(0.0-0.1)AA	
ANALYTE	mg/L	ug/L
BARIUM		7.1 J
NITROGEN, AMMONIA (A		0.21
POTASSIUM		1100

D30D - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ARSENIC	1.1 J
BERYLLIUM	0.05
COBALT	0.77
NICKEL	1.0

D30A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ARSENIC	0.89 J
BERYLLIUM	0.07
COBALT	0.87
MERCURY	0.09 J
NICKEL	1.5
POTASSIUM	107
ZINC	6.6

P30A - Surface Water	(0.0-0.1)AA	
ANALYTE	mg/L	ug/L
BARIUM		5.0 J
COPPER		2.4 J
NITROGEN, AMMONIA (A		0.19

30C
30B
30D
30A
BHW215083
Canal View Road
30

276 500 276 600 276 700 276 800 276 900
851 000 850 900 850 800 850 700 850 600

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES Area 30: Donnely Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
30-2

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR302

DRAFT

D30C - Sediment	(0.13-0.87)AA
ANALYTE	ug/kg
ACETONE	99 J
CARBON DISULFIDE	13 J
MEK	22 J

P30C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
CHLOROFORM	0.5 J

D30B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	19 J

D30A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
TOLUENE	12 J

P30A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	5.0 J

30C
30B
30D
30A
BHW215083
Canal View Road
30
276 500
276 600
276 700
276 800
276 900
831 000
830 900
830 800
830 700
830 600

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D30A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 30: Donnely Pond

N

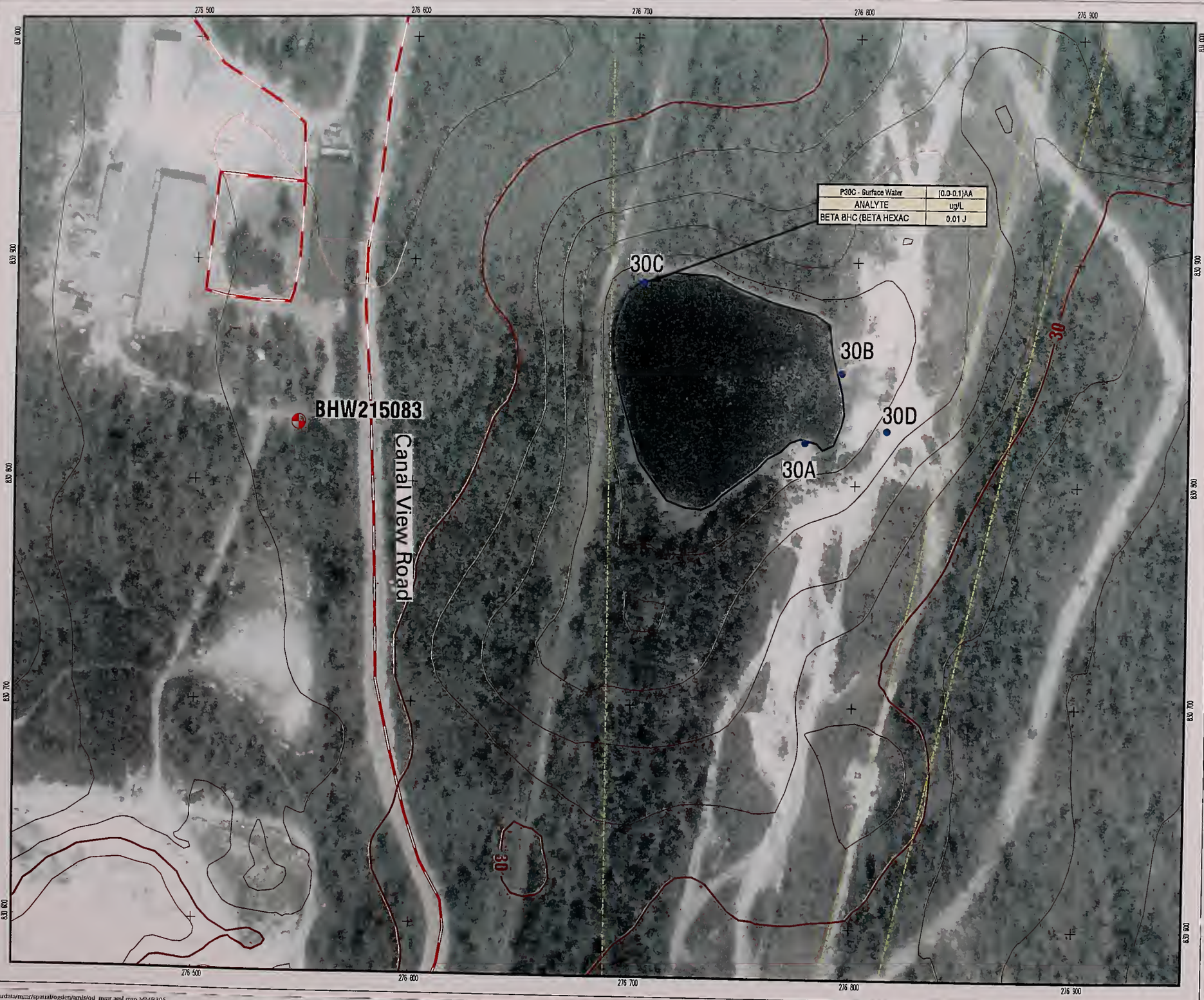
0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
30-3

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR303

DRAFT



MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- P30C Location Identifier
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 30: Donnely Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
30-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR305

DRAFT

276 800 276 900 277 000 277 100 277 200

831 200 831 100 831 000 830 900

Canal View Road

D31A - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BERYLLIUM	0.05
NICKEL	0.72 J

P31A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	4.6 J
VANADIUM	1.9 J

31A

31B

P31B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	4.2 J
VANADIUM	1.8 J

D31B - Sediment	(0.08-0.59)AA
ANALYTE	mg/kg
BERYLLIUM	0.08
MERCURY	0.09 J
NICKEL	0.71 J

A5

30

276 800 276 900 277 000 277 100 277 200

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR312

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D31A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6GIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 31: Little Halfway Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
31-2

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D31A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Data Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 31: Little Halfway Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
31-3

/oahu/mmrdata/mmr/spatial/ogden/arnls/qd_mmr.aml map MMR313

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D31A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

276 800 276 900 277 000 277 100 277 200

831 200 831 100 831 000 830 900 830 800

Canal View Road

31A

D31A - Sediment	(0.06-0.58)AA
ANALYTE	ug/kg
2,4 DB	97 J
DDD (1,1-BIS(CHLOROP	11
DDE (1,1-BIS(CHLOROP	9.4
DIELDRIN	10
MCPA	11000 NJ

31B

D31B - Sediment	(0.06-0.58)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	8.5 J
DDE (1,1-BIS(CHLOROP	5.5
DIELDRIN	4.4 J
MCPA	14000 NJ

45

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 31: Little Halfway Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
31-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR315

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D32A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L
IMAGE DATE: 1997
All sample depth measurements are in feet

D32A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	5050
BARIUM	23.7
BERYLLIUM	0.1 J
CALCIUM	204
CHROMIUM, TOTAL	5.8
COBALT	1.0 J
COPPER	4.0
IRON	2060 J
LEAD	15.5
MAGNESIUM	375
MANGANESE	24.2
NICKEL	3.5
NITRATE/NITRITE (AS	0.97
NITROGEN, AMMONIA (A	46.4
PHOSPHORUS, TOTAL OR	241
POTASSIUM	255
VANADIUM	11.1
ZINC	18.3

D32A - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L / ug/L
ALUMINUM	158
CALCIUM	709
CHLORIDE (AS CL)	7.4
IRON	615
MAGNESIUM	776
MANGANESE	89.8
MOLYBDENUM	1.5 J
NITROGEN, AMMONIA (A	0.04 J
PHOSPHORUS, TOTAL OR	0.07
SODIUM	4080
SULFATE (AS SO4)	2.8

D32A - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L / ug/L
ALUMINUM	222
BARIUM	4.2 J
CALCIUM	559
CHLORIDE (AS CL)	7.6
IRON	498
MAGNESIUM	797
MANGANESE	67
NITROGEN, AMMONIA (A	0.04 J
PHOSPHORUS, TOTAL OR	0.03
SODIUM	3980
SULFATE (AS SO4)	3.5
VANADIUM	2.2 J

D32B - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	2150
BARIUM	8.2
BERYLLIUM	0.06 J
CALCIUM	118
CHROMIUM, TOTAL	2.2
COPPER	1.8
IRON	518 J
LEAD	4.4
MAGNESIUM	102
MANGANESE	10.4
NICKEL	0.95 J
NITRATE/NITRITE (AS	0.07
NITROGEN, AMMONIA (A	18
PHOSPHORUS, TOTAL OR	146
POTASSIUM	84.2 J
VANADIUM	5.0

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 32: Raccoon Swamp

N

0 100
FEET
0 30
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
32-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR322

MMR Groundwater Study

281 600 | 281 700 | 281 800

832 900 | 832 800 | 832 700

45

45

P32B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	9.0 J
TOLUENE	0.2 J

32A

32B

P32A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	8.0 J

Spruce Swamp Road

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- P32A Location Identifier
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 32: Raccoon Swamp

N

0 100
FEET
0 30
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/27/98							

FIGURE
32-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR323

DRAFT

MMR Groundwater Study

281 600 | 281 700 | 281 800

832 900 | 832 800 | 832 700

45

45

D32B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	30 J

32A

323

D32A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	200 J

Spruce Swamp Road

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D32A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 32: Raccoon Swamp

N

0 100
FEET
0 30
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/27/98							

FIGURE
32-4

/oshu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR324

DRAFT

281 600 281 700 281 800

832 900 832 800 832 700

D32A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	81
DDE (1,1-BIS(CHLOROP	85
DDT (1,1-BIS(CHLOROP	32
DIELDRIN	25
MCPA	13000 NJ

D32B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	3.0 J

P32B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALDRIN	0.01 J
DDD (1,1-BIS(CHLOROP	0.02 NJ
DDE (1,1-BIS(CHLOROP	0.02 J
DDT (1,1-BIS(CHLOROP	0.05 J
ENDRIN ALDEHYDE	0.04
PCB-1260 (AROCHLOR 1	0.59

32A

32B

Spruce Swamp Road

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells

D32A	Location Identifier
ug/kg	Micrograms Per Kilogram
ug/L	Micrograms Per Liter
J	Estimated Quantity
NJ	Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6GIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 32: Raccoon Swamp

N

0 100
FEET
0 30
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
32-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR325

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D33A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

P33A - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
BARIUM	5.3 J	5.0 J
BORON		5.8 J
MOLYBDENUM	2.7 J	

D33A - Sediment	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	mg/kg	mg/kg
BERYLLIUM	0.09 J	0.09
NICKEL	0.88 J	
POTASSIUM	91.2 J	
ZINC	11.2	9.1

D33B - Sediment	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	mg/kg	mg/kg
BERYLLIUM	0.02 J	0.03 J
ZINC	2.4	3.3

P33B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	5.4 J
BERYLLIUM	0.11 J
MOLYBDENUM	1.9 J

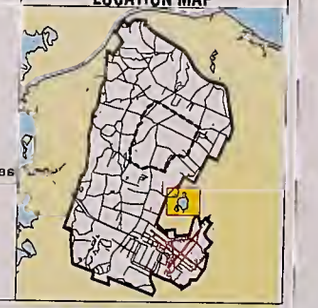
P33C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BORON	8.2

D33C - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
POTASSIUM	124
ZINC	8.0

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 33: Snake Pond

N

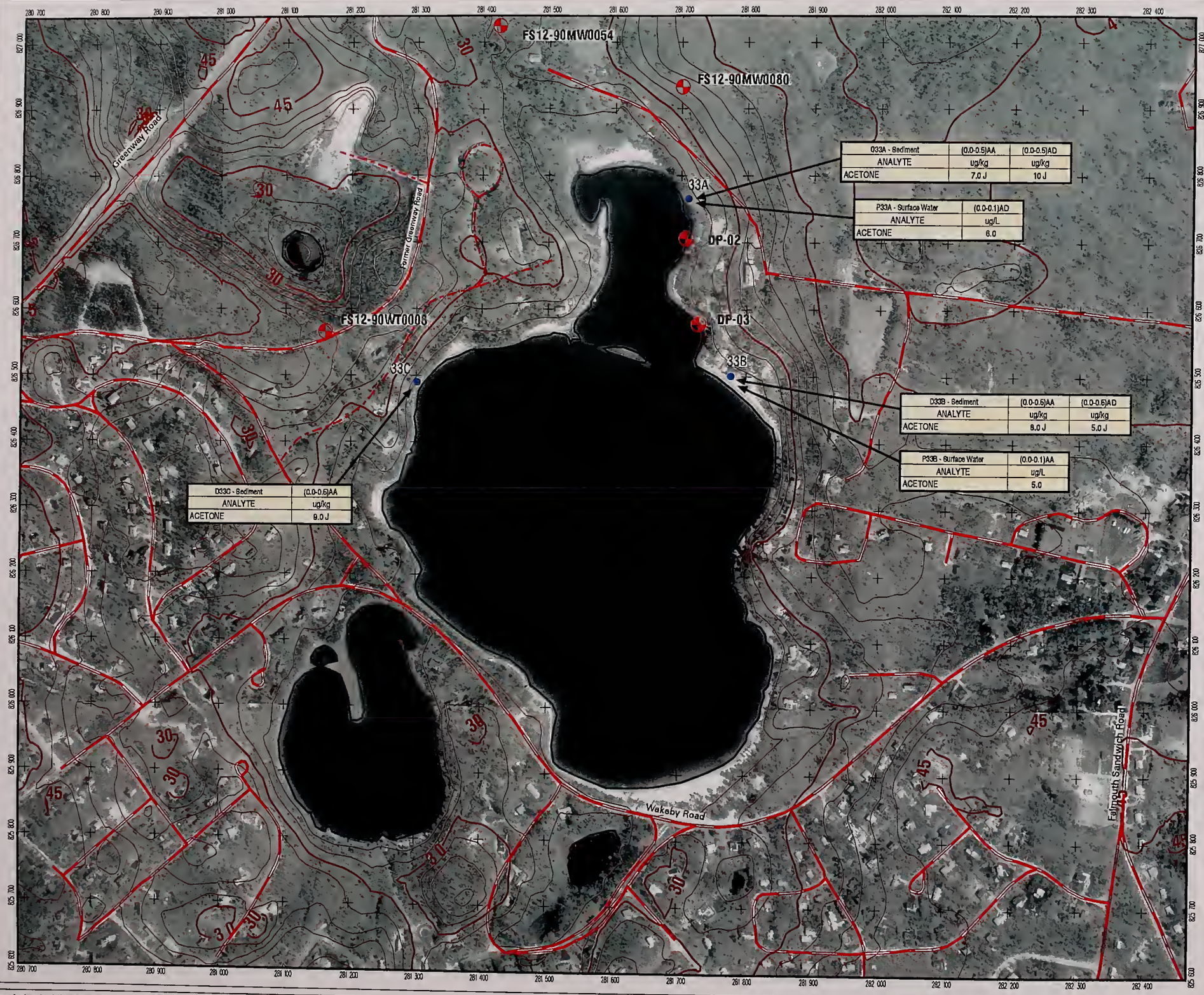
0 500
0 FEET 152
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
33-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR332



MMR Groundwater Study

LEGEND

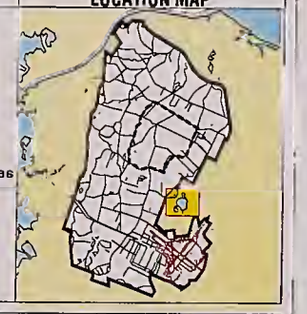
- Surface Water/Sediment Samples
- Groundwater Wells
- D33A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 33: Snake Pond

N

0 500
FEET
0 152
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
33-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR333

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D33A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA66GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA66GIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 33: Snake Pond

D33A - Sediment	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
BIS(2-ETHYLHEXYL) PH	180 J	89 J
DI-N-OCTYLPHTHALATE	30 J	

D33B - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	32 J

0 500
FEET
0 152
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
33-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr aml map MMR334

MMR Groundwater Study

FS12-90MW0054
FS12-90MW0080
FS12-90WT0008
33A
33B
33C
DP-02
DP-03
Greenway Road
Former Greenway Road
Wakeby Road
Falmouth Sandwich Road

D33A - Sediment	(0.0-0.5)AD
ANALYTE	ug/kg
MCPP	22000 J

D33B - Sediment	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
2,4,5-T (TRICHLOROPH		6.1 NJ
BENTAZON	620 NJ	
MCPP		9700 NJ
PICLORAM	10 NJ	
SILVEX (2,4,5-TP)	8.3 NJ	

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D33A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 33: Snake Pond

N

0 500
FEET
0 152
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
33-5

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/mxds/qd_mmr.aml map MMR335

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D34B Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D34B - Sediment	(0.17-0.67)AA	(0.17-0.67)AD
ANALYTE	mg/kg	mg/kg
ARSENIC	2.2	1.6 J
BERYLLIUM	0.2	0.24
COBALT	1.7	1.9
MANGANESE	27.4 J	30.6 J
MOLYBDENUM	0.44 J	0.8
NICKEL	3.9	4.4
SELENIUM		1.4 J
ZINC	16.6	16.7

D34C - Sediment	(0.25-0.67)AA
ANALYTE	mg/kg
ARSENIC	1.3 J
BERYLLIUM	0.11 J
COBALT	0.7 J
NICKEL	2.3 J
ZINC	10.2 J

P34B - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
POTASSIUM	1310	1360

P34C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
POTASSIUM	1360
VANADIUM	1.6 J

P34A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BARIUM	2.7
POTASSIUM	1100

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MAGGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MAGGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 34: Bailey's Pond

N

0 200
0 FEET 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
34-2

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR342

MMR Groundwater Study

278 300 278 400 278 500 278 600 278 700 278 800 278 900 279 000

831 900 831 800 831 700 831 600 831 500 831 400

Avery Road

Burgoyne Road

60

75

D34B - Sediment	(0.17-0.67)AA	(0.17-0.67)AD
ANALYTE	ug/kg	ug/kg
ACETONE	32 J	16 J
MEK	7.0 J	
TOLUENE		2.0 J

P34B - Surface Water	(0.0-0.1)AD
ANALYTE	ug/L
ACETONE	8.0 J

D34C - Sediment	(0.25-0.67)AA
ANALYTE	ug/kg
ACETONE	210 J
MEK	40 J
TOLUENE	10 J

34B

34C

34A

034A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	43
CHLOROFORM	4.0 J
METHYLENE CHLORIDE	25
TOLUENE	11 J

Burgoyne Road

/oahu/mmrdata/mmr/spatial/ogden/aml s/qd_mmr.aml map MMR343

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D34A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 34: Bailey's Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
34-3

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- P34A Location Identifier
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

Avery Road

Burgoyne Road

60

75

34B

34C

34A

P34A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BIS(2-ETHYLHEXYL) PH	20 J

278 300 278 400 278 500 278 600 278 700 278 800 278 900 279 000

831 900 831 800 831 700 831 600 831 500 831 400

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 34: Bailey's Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/27/98							

FIGURE
34-4

/onhw/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR344

DRAFT

278 300 278 400 278 500 278 600 278 700 278 800 278 900 279 000

831 900 831 800 831 700 831 600 831 500 831 400

Avery Road

Burgoyne Road

Burgoyne Road

60

75

75

75

75

P34B - Surface Water	(0.0-0.1)AD
ANALYTE	ug/L
DDE (1,1-BIS(CHLOROP	0.01 J

D34B - Sediment	(0.17-0.67)AA	(0.17-0.67)AD
ANALYTE	ug/kg	ug/kg
MCPA	17000 NJ	20000 NJ

P34C - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
DDE (1,1-BIS(CHLOROP	0.01 J

34B

34C

34A

278 300 278 400 278 500 278 600 278 700 278 800 278 900 279 000

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR345

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells

D34B	Location Identifier
ug/kg	Micrograms Per Kilogram
ug/L	Micrograms Per Liter
J	Estimated Quantity
NJ	Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA6GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA6GIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 34: Bailey's Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
34-5

DRAFT

280 300 280 400 280 500 280 600 280 700

832 600 832 500 832 400 832 300 832 200

Gibbs Road

D35A - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
ARSENIC	4.2
BERYLLIUM	0.3
COBALT	5.3
COPPER	8.2
IRON	12500 J
MAGNESIUM	2100
MANGANESE	106 J
MOLYBDENUM	2.4 J
NICKEL	9.1
POTASSIUM	710
VANADIUM	23.2
ZINC	24.4

D35B - Sediment	(0.17-0.67)AA
ANALYTE	mg/kg
ALUMINUM	14300
ARSENIC	3.7
BERYLLIUM	0.22 J
BORON	10.5
COBALT	2.5
COPPER	8.8
IRON	13500 J
MANGANESE	90
NICKEL	8.0
POTASSIUM	599
VANADIUM	32
ZINC	23.3

35B

35A

P35A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALUMINUM	581
POTASSIUM	2000
VANADIUM	1.7 J

P35B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALUMINUM	718
POTASSIUM	2260
THALLIUM	6.7

600

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR352

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D35A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA66GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA66GIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 35: Gibbs Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
35-2

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D35B Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 35: Gibbs Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
35-4

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR354

DRAFT

280 300 280 400 280 500 280 600 280 700

832 600 832 500 832 400 832 300 832 200

Gibbs Road

35A

35B

D35A - Sediment	(0.09-0.58)AA
ANALYTE	ug/kg
DIELDRIN	2.6 J

D35B - Sediment	(0.17-0.67)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	16 J
DDE (1,1-BIS(CHLOROP	3.7 J

P35B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
DDT (1,1-BIS(CHLOROP	0.02 J
ENDRIN	0.02 J
ENDRIN ALDEHYDE	0.01 J
PCB-1260 (AROCHLOR 1	0.17 J

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR355

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D35A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA66GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA66GIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 35: Gibbs Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
35-5

DRAFT

278 200 278 300 278 400 278 500 278 600 278 700 278 800

827 800 827 700 827 600 827 500 827 400 827 300

Pocasset Sandwich Road

Frank Perkins Road

Pocasset Forestdale Road

45

P36B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
MANGANESE	89.5

D36B - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BERYLLIUM	0.03 J
NICKEL	1.3
POTASSIUM	88.6 J
ZINC	7.4

36B

36C

36A

MW20

D36C - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BERYLLIUM	0.06
NICKEL	0.79 J
POTASSIUM	87.3
SELENIUM	1.1 J
ZINC	4.2

D36A - Sediment	(0.08-0.58)AA
ANALYTE	mg/kg
BERYLLIUM	0.1 J
NICKEL	0.87 J
POTASSIUM	68.6 J

G

/cahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR362

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D36A Location Identifier
- mg/kg Milligrams Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES Area 36: Opening Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE

36-2

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D36B Location Identifier
- ug/kg Micrograms Per Kilogram

IMAGE DATE: 1997
All sample depth measurements are in feet

D36B - Sediment	(0.09-0.58)AA
ANALYTE	ug/kg
TOLUENE	42

D36C - Sediment	(0.09-0.58)AA
ANALYTE	ug/kg
ACETONE	38
TOLUENE	17

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 36: Opening Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
36-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR363

278 200 278 300 278 400 278 500 278 600 278 700 278 800

827 800 827 700 827 600 827 500 827 400 827 300

Pocasset Sandwich Road

Frank Perkins Road

Pocasset Forestdale Road

45 45 45 45

36B 36C 36A

MW20

G

D36A - Sediment	(0.08-0.68)AA
ANALYTE	ug/kg
4-METHYLPHENOL (P-CR	23 J

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D36A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 36: Opening Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
36-4

/ohw/maturdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR364

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D36A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D36B - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	5.7
MCPA	7100 J

D36A - Sediment	(0.08-0.58)AA
ANALYTE	ug/kg
MCPA	11000 NJ

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 36: Opening Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
36-5

DRAFT

/oshu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR365

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D37A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L

IMAGE DATE: 1997

All sample depth measurements are in feet

D37A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
BARIUM	40.8 J
BERYLLIUM	0.29 J
COPPER	8.8 J
POTASSIUM	135 J
ZINC	13.2 J

P37A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ZINC	10.7

D37B - Sediment	(0.08-0.5)AA
ANALYTE	mg/kg
COPPER	4.5
POTASSIUM	130 J

P37B - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	1300
BARIUM	18.5
IRON	1260
LEAD	15
NITROGEN, AMMONIA (A	0.14
POTASSIUM	1450
VANADIUM	4.4
ZINC	20

D37C - Sediment	(0.08-0.5)AA	(0.08-0.5)AD
ANALYTE	mg/kg	mg/kg
BERYLLIUM	0.17	
CADMIUM	0.12 J	0.1 J
COBALT	0.65 J	0.57 J
COPPER	8.3	8.2
POTASSIUM	124 J	114 J
ZINC	8.5	7.8

P37C - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
ALUMINUM		253
SELENIUM		5.8
VANADIUM	1.7 J	1.8 J
ZINC	8.4	8.8

37A
37B
37C
FS12-90WT0008
Greenway Road
Former Greenway Road

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN SURFACE WATER/SEDIMENT SAMPLES
Area 37: Bypass Bog

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
37-2

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR372

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D37A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D37B - Sediment	(0.08-0.5)AA
ANALYTE	ug/kg
ACETONE	210
MEK	53
TOLUENE	140

P37B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	6.0
TOLUENE	0.5 J

D37A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	35 J
TOLUENE	22

P37A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	7.0

D37C - Sediment	(0.08-0.5)AA	(0.08-0.5)AD
ANALYTE	ug/kg	ug/kg
ACETONE	180	120
MEK	54	29 J
TOLUENE	40	34

P37C - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
ACETONE	8.0	5.0

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 37: Bypass Bog

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
37-3

DRAFT

/nfs/.../mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR373

MMR Groundwater Study

LEGEND

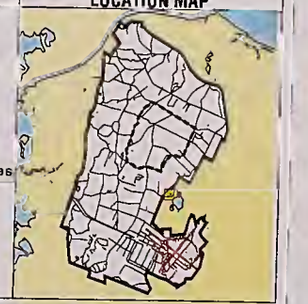
- Surface Water/Sediment Samples
- Groundwater Wells
- D37C Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Maters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN SURFACE WATER/SEDIMENT SAMPLES
Area 37: Bypass Bog

N

0 200
0 FEET 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
37-4

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR374

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D37A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

P37B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
DDE (1,1-BIS(CHLOROP	0.01 J
DDT (1,1-BIS(CHLOROP	0.01 J

D37A - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	44 J

D37C - Sediment	(0.08-0.5)AD
ANALYTE	ug/kg
DIELDRIN	3.0 J
MCPA	28000 J

37A
37B
37C
FS12-90WT0008
Greenway Road
Former Greenway Road
45
30

280 800 280 900 281 000 281 100 281 200 281 300 281 400
826 900 826 800 826 700 826 600 826 500 826 400

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN SURFACE WATER/SEDIMENT SAMPLES
Area 37: Bypass Bog

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
37-5

/oahu/mmrdata/mmr/spatial/ogden/arcs/qd_mmr.aml map MMR375

DRAFT

D39A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	639
BARIUM	4.3
CALCIUM	67.6
CHROMIUM, TOTAL	0.62 J
COPPER	4.3
IRON	201
LEAD	7.8
MAGNESIUM	44.5 J
MANGANESE	3.6
NITRATE/NITRITE (AS	0.08 J
NITROGEN, AMMONIA (A	70.8
PHOSPHORUS, TOTAL OR	23.4 J
POTASSIUM	88.4 J
VANADIUM	2.8

P39E - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	151
CALCIUM	454
CHLORIDE (AS CL)	6.6
IRON	116
MAGNESIUM	499
MANGANESE	26.1
NITRATE/NITRITE (AS	0.02
NITROGEN, AMMONIA (A	0.07 J
POTASSIUM	645
SODIUM	3760
SULFATE (AS SO4)	2.5
VANADIUM	1.9 J
ZINC	9.0

D39E - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	816 J
BARIUM	12.6 J
CADMIUM	0.14 J
CALCIUM	228 J
CHROMIUM, TOTAL	0.89 J
COPPER	3.0 J
IRON	541 J
LEAD	23.6 J
MAGNESIUM	55.5 J
MANGANESE	3.7 J
NITRATE/NITRITE (AS	0.15 J
NITROGEN, AMMONIA (A	89 J
PHOSPHORUS, TOTAL OR	34.8 J
VANADIUM	6.4 J
ZINC	9.5 J

D39D - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	636
BARIUM	15.1
CALCIUM	152
CHROMIUM, TOTAL	0.74 J
COPPER	2.1
IRON	309
LEAD	2.4
NITRATE/NITRITE (AS	0.16 J
NITROGEN, AMMONIA (A	114
PHOSPHORUS, TOTAL OR	42.5 J
VANADIUM	0.61 J

P39A - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	50.9
CALCIUM	427
CHLORIDE (AS CL)	6.6
IRON	78.6
MAGNESIUM	484
MANGANESE	24.1
NITRATE/NITRITE (AS	0.02
NITROGEN, AMMONIA (A	0.05 J
POTASSIUM	592
SODIUM	3750
SULFATE (AS SO4)	2.6
VANADIUM	1.6 J
ZINC	8.4

P39D - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	189
CALCIUM	434
CHLORIDE (AS CL)	7.1
IRON	89.4
MAGNESIUM	515
MANGANESE	24.5
NITRATE/NITRITE (AS	0.06
NITROGEN, AMMONIA (A	0.05 J
PHOSPHORUS, TOTAL OR	0.01
POTASSIUM	639
SODIUM	3940
SULFATE (AS SO4)	2.5
ZINC	6.1

P39B - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	304
BARIUM	4.8 J
CALCIUM	825
CHLORIDE (AS CL)	9.7
IRON	217
LEAD	3.0 J
MAGNESIUM	672
MANGANESE	27.3
NITRATE/NITRITE (AS	0.03
NITROGEN, AMMONIA (A	0.06 J
PHOSPHORUS, TOTAL OR	0.02
POTASSIUM	727
SODIUM	4490
SULFATE (AS SO4)	4.2
VANADIUM	2.4 J
ZINC	23.8

D39B - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	2130
BARIUM	15.3
CALCIUM	139
CHROMIUM, TOTAL	2.1
COPPER	1.5
IRON	347
LEAD	3.3
MANGANESE	2.7
NITRATE/NITRITE (AS	0.24 J
NITROGEN, AMMONIA (A	70
PHOSPHORUS, TOTAL OR	55.8 J
VANADIUM	1.6

D39C - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	821
BARIUM	2.6
CALCIUM	29.6 J
CHROMIUM, TOTAL	0.78
IRON	144
LEAD	2.2
NITRATE/NITRITE (AS	0.06 J
NITROGEN, AMMONIA (A	15.3
PHOSPHORUS, TOTAL OR	10.8 J
VANADIUM	1.2

P39C - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	40.6
BERYLLIUM	0.1 J
CALCIUM	441
CHLORIDE (AS CL)	7.1
IRON	86.6
MAGNESIUM	505
MANGANESE	24.2
NITRATE/NITRITE (AS	0.02
NITROGEN, AMMONIA (A	0.03 J
POTASSIUM	657
SODIUM	3780
SULFATE (AS SO4)	2.4
ZINC	6.3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR392

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D39A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L

IMAGE DATE: 1997

All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 39: Great Pond

N

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
39-2

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D39C Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D39E - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	3.8 J

D39D - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	9.0
DDE (1,1-BIS(CHLOROP	4.3 J
DIELDRIN	3.2 J
MCPA	16000 J

P39A - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
PCB-1260 (AROCHLOR 1	0.18 J

D39C - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
MCPA	8900 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA&GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA&GIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 39: Great Pond

0 200
FEET
0 61
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
39-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR395

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D40A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L
IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA88GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA88GIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES Area 40: Doughnut Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
40-2

DRAFT

283 200 283 300 283 400 283 500 283 600
832 900 833 000 832 800 832 700

Route 130

40A 40B 40C 40D 40E

D40A - Sediment	(0.17-0.58)AA	(0.17-0.58)AD
ANALYTE	mg/kg	mg/kg
ALUMINUM	8220	3580
BARIUM	11.9	7.8
BERYLLIUM	0.16	0.12
CALCIUM	54.4	36.5 J
CHROMIUM, TOTAL	5.8	3.4
COBALT	0.95 J	0.53 J
COPPER	2.3 J	1.3
IRON	3340	2220
LEAD	14.2	5.3
MAGNESIUM	425	248
MANGANESE	17.3	8.7
NICKEL	3.3	2.3
NITRATE/NITRITE (AB	0.06	0.07
NITROGEN, AMMONIA (A	5.1 J	8.2 J
PHOSPHORUS, TOTAL OR	149 J	146 J
VANADIUM	13.9	7.8
ZINC	18.2	11.2

D40B - Sediment	(0.08-0.5)AA
ANALYTE	mg/kg
ALUMINUM	1520
BARIUM	3.7
BERYLLIUM	0.07
CADMIUM	0.07 J
CALCIUM	31.3 J
CHROMIUM, TOTAL	1.6 J
COPPER	0.75 J
IRON	218
LEAD	11.7
MAGNESIUM	43.4 J
MANGANESE	3.7
NITRATE/NITRITE (AS	0.25
NITROGEN, AMMONIA (A	11.4
PHOSPHORUS, TOTAL OR	22.4 J
VANADIUM	2.8
ZINC	4.6

P40B - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	27.8
ANTIMONY	3.8 J
BARIUM	50
CALCIUM	644
CHLORIDE (AS CL)	11.1
IRON	272
MAGNESIUM	830
MANGANESE	59.8
NITRATE/NITRITE (AS	0.02
NITROGEN, AMMONIA (A	0.08 J
PHOSPHORUS, TOTAL OR	0.02 J
POTASSIUM	875
SODIUM	5740
SULFATE (AS SO4)	1.7

D40C - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	1770
BARIUM	3.6
BERYLLIUM	0.07
CALCIUM	50.8
CHROMIUM, TOTAL	2.2
COPPER	2.8
IRON	349
LEAD	5.4
MAGNESIUM	81.6
MANGANESE	4.0
NITRATE/NITRITE (AB	0.8
NITROGEN, AMMONIA (A	37.8
VANADIUM	3.4
ZINC	6.8

P40A - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	mg/L | ug/L	mg/L | ug/L
ALUMINUM	41.2	52.1
BARIUM	7.0 J	4.9 J
CALCIUM	577	623
CHLORIDE (AS CL)	10.9	10.9
IRON	292	300
MAGNESIUM	670	645
MANGANESE	54.1	49.9
NITRATE/NITRITE (AS		0.18
NITROGEN, AMMONIA (A	0.07 J	0.08 J
PHOSPHORUS, TOTAL OR	0.05 J	0.02 J
POTASSIUM	918	827
SULFATE (AS SO4)	2.0	1.8

P40C - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	38.1
CALCIUM	623
CHLORIDE (AS CL)	11.4
IRON	275
MAGNESIUM	667
MANGANESE	48
NITRATE/NITRITE (AS	0.01
NITROGEN, AMMONIA (A	0.05 J
PHOSPHORUS, TOTAL OR	0.01 J
POTASSIUM	826
SULFATE (AS SO4)	1.8

D40E - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	1150
BARIUM	2.5
BERYLLIUM	0.03 J
CALCIUM	58.7 J
CHROMIUM, TOTAL	0.7
IRON	282
LEAD	3.8
MAGNESIUM	87.3
MANGANESE	5.1
NITRATE/NITRITE (AS	0.07
NITROGEN, AMMONIA (A	9.5 J
PHOSPHORUS, TOTAL OR	111 J
VANADIUM	1.8
ZINC	8.8

P40E - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALUMINUM	44
ANTIMONY	3.6 J
CALCIUM	530
CHLORIDE (AS CL)	12.6
IRON	399
MAGNESIUM	766
MANGANESE	49.9
NITROGEN, AMMONIA (A	0.04 J
PHOSPHORUS, TOTAL OR	0.05 J
POTASSIUM	875
SODIUM	6980
SULFATE (AS SO4)	2.2

P40D - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	1.0
ALUMINUM	62.2
CALCIUM	718
CHLORIDE (AS CL)	12.8
IRON	399
MAGNESIUM	849
MANGANESE	55.8
NITRATE/NITRITE (AS	0.02
NITROGEN, AMMONIA (A	0.07 J
PHOSPHORUS, TOTAL OR	0.05 J
POTASSIUM	1060
SODIUM	7190
SULFATE (AS SO4)	1.6

D40D - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	2170
BARIUM	2.3
BERYLLIUM	0.07
CALCIUM	50.7
CHROMIUM, TOTAL	2.0
COPPER	2.0 J
IRON	808
LEAD	2.8
MAGNESIUM	116
MANGANESE	4.4
NITRATE/NITRITE (AS	0.05
NITROGEN, AMMONIA (A	11.7
PHOSPHORUS, TOTAL OR	82.5 J
VANADIUM	4.4
ZINC	3.7

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR402

283 200 283 300 283 400 283 500 283 600

833 100 833 000 832 900 832 800 832 700

45

Route 130

D40A - Sediment	(0.17-0.58)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	89 J

40B

D40B - Sediment	(0.08-0.5)AA
ANALYTE	ug/kg
BIS(2-ETHYLHEXYL) PH	120 J

40A

40C

D40D - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
2-METHYLPHENOL (O-CR	63 J

40E

40D

P40E - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
BIS(2-ETHYLHEXYL) PH	1.0 J

60

283 200 283 300 283 400 283 500 283 600

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D40A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 40: Doughnut Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
40-4

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR404

DRAFT

MMR Groundwater Study

283 200 283 300 283 400 283 500 283 600

833 100 833 000 832 900 832 800 832 700

45

Route 130

D40A - Sediment	(0.17-0.59)AA	(0.17-0.58)AD
ANALYTE	ug/kg	ug/kg
ALDRIN	1.7 J	1.2 J
DDD (1,1-BIS(CHLOROP	430	360
DDE (1,1-BIS(CHLOROP	85	62
DDT (1,1-BIS(CHLOROP	40	28
DIELDRIN	37	50
MCPA	12000 NJ	
MCPP	12000 NJ	

P40A - Surface Water	(0.0-0.1)AA	(0.0-0.1)AD
ANALYTE	ug/L	ug/L
2,4 DB	1.1 NJ	
MCPP		150 NJ

40B

40A

40C

40E

40D

D40B - Sediment	(0.08-0.5)AA
ANALYTE	ug/kg
DIELDRIN	24

D40C - Sediment	(0.0-0.6)AA
ANALYTE	ug/kg
DIELDRIN	24

D40D - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DIELDRIN	49

P40E - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ALPHA-CHLORDANE	0.01 NJ

040E - Sediment	(0.0-0.5)AA
ANALYTE	ug/kg
DDD (1,1-BIS(CHLOROP	6.6
DIELDRIN	49

60

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D40A Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MA66GIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MA66GIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 40: Doughnut Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
40-5

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr aml map MMR405

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 41A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN BACKGROUND SOIL SAMPLES
Area 41: Shawme Crowell State Forest

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
41-2

DRAFT

41A	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg	mg/kg
ALUMINUM	2420	2640	16300
ANTIMONY	1.5	0.88 J	1.1 J
ARSENIC	2.0	1.7	3.8
BARIUM	4.8	4.8	15.7
BERYLLIUM	0.03 J	0.04	0.27
CALCIUM	58	51.4	122
CHROMIUM, TOTAL	3.0	3.2	15.8
COBALT	0.58	0.74	3.1
COPPER	1.7 J	1.7 J	3.2 J
IRON	4800	5000	14300
LEAD	13.1	13.2	8.8
MAGNESIUM	133	121	941
MANGANESE	9.4	9.2	47
NICKEL	1.3	1.8	7.4
NITRATE/NITRITE (AS	0.07	0.06	0.02 J
NITROGEN, AMMONIA (A	11.7 J	11.5 J	8.3 J
PHOSPHORUS, TOTAL OR	57.8	55.2	118
POTASSIUM			499
SELENIUM			1.4 J
VANADIUM	20.3	18.7	25.7
ZINC		5.4 J	15.8 J

41B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	5040	14400
ARSENIC		3.8 J
BARIUM	7.4	24.9
BERYLLIUM	0.05 J	0.3
CALCIUM	148	102
CHROMIUM, TOTAL	4.7	14.3
COBALT	0.8	3.6
COPPER	2.6 J	3.8 J
IRON	5850	13400
LEAD	15.5	7.1
MAGNESIUM	187	1230
MANGANESE	13.2	63.8
NICKEL	2.4	7.6
NITRATE/NITRITE (AS	0.06	0.01 J
NITROGEN, AMMONIA (A	12.9	
PHOSPHORUS, TOTAL OR	83.3 J	143 J
POTASSIUM	121	346
VANADIUM	22.7	21.7
ZINC	12.3	18

41C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	875	8190
BARIUM	2.7	7.9
BERYLLIUM		0.18
CALCIUM	33.3	71.8
CHROMIUM, TOTAL	1.3	7.0
COBALT	0.25 J	1.4
COPPER	0.74 J	1.9 J
IRON	1950	7440
LEAD	5.8	4.4
MAGNESIUM	44.5	377
MANGANESE	4.8	28.1
NICKEL	0.58 J	3.1
NITRATE/NITRITE (AS	0.19	0.01 J
NITROGEN, AMMONIA (A	3.3	
PHOSPHORUS, TOTAL OR	37.6 J	83.1 J
POTASSIUM	62.3 J	181
THALLIUM		1.6 J
VANADIUM	10	12.7
ZINC	4.2	8.2

41D	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	843	7270
BARIUM	3.0	9.4
BERYLLIUM		0.14
CALCIUM	25.2 J	51.5
CHROMIUM, TOTAL	1.3	5.2
COBALT	0.36 J	1.5
COPPER	1.4 J	2.2 J
IRON	1750	6510
LEAD	8.3	4.2
MAGNESIUM	46.8	405
MANGANESE	4.9	26.3
NICKEL	0.42 J	3.5
NITRATE/NITRITE (AS	0.06	0.02 J
NITROGEN, AMMONIA (A	4.6	
PHOSPHORUS, TOTAL OR	38.6 J	74.1 J
POTASSIUM	80 J	156
VANADIUM	9.7	10.8
ZINC		10.2

41E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	11000	11800
BARIUM	9.4	15.6
BERYLLIUM		0.21
CALCIUM	87.8	66.7
CHROMIUM, TOTAL	10	13.3
COBALT		3.1
COPPER		2.6 J
IRON	12300	10300
LEAD	19.1	8.3
MAGNESIUM	428	1250
MANGANESE	17.5	48
NICKEL	3.3	5.4
NITRATE/NITRITE (AS	0.04 J	0.02 J
NITROGEN, AMMONIA (A	13.3	
PHOSPHORUS, TOTAL OR	114 J	105 J
POTASSIUM	245	384
VANADIUM	29.3	18
ZINC	10.8	14.7

41F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	10500	9730
BARIUM	12.3	14.3
BERYLLIUM	0.17	0.23
CALCIUM	80.7	75.8
CHROMIUM, TOTAL	8.4	11.7
COBALT	1.3	3.3
COPPER	1.3 J	3.0 J
IRON	10300	10300
LEAD	7.6	6.0
MAGNESIUM	356	996
MANGANESE	22.9	56.1
NICKEL	3.2	5.6
NITRATE/NITRITE (AS	0.02 J	0.01 J
NITROGEN, AMMONIA (A	12.8	3.9
PHOSPHORUS, TOTAL OR	89.4 J	101 J
POTASSIUM	192	308
VANADIUM	17.6	17.1
ZINC	12.4	14

41G	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	9800	12900
BARIUM	8.2	13.8
BERYLLIUM	0.09 J	0.18
CALCIUM	45.8	82.3
CHROMIUM, TOTAL	8.9	12
COBALT	1.5	2.0
COPPER	1.7 J	2.0 J
IRON	10700	11200
LEAD	8.0	8.5
MAGNESIUM	362	710
MANGANESE	19.4	29.3
NICKEL	3.3	5.8
NITRATE/NITRITE (AS	0.05 J	0.02 J
NITROGEN, AMMONIA (A	14.5	3.8
PHOSPHORUS, TOTAL OR	101 J	93.1 J
POTASSIUM	161	252
VANADIUM	18.2	20.8
ZINC	13.8	18.4

41H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	15300	15100
ANTIMONY		0.82 J
ARSENIC		4.0 J
BARIUM	24.8	27.2
BERYLLIUM	0.3	0.3
CALCIUM	168	129
CHROMIUM, TOTAL	17.6	17.8
COBALT	4.8	4.8
COPPER	3.8 J	4.8 J
IRON	13500	14700
LEAD	8.4	8.1
MAGNESIUM	1740	1770
MANGANESE	78.3	90.5
MERCURY		0.1
NICKEL	8.8	8.1
NITRATE/NITRITE (AS	0.01 J	
NITROGEN, AMMONIA (A	12.3	4.3 J
PHOSPHORUS, TOTAL OR	119 J	118 J
POTASSIUM	671	640
SELENIUM		1.3 J
VANADIUM	24.1	25.2
ZINC	22.4	19.5

41I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	8410	9540
ANTIMONY		0.55 J
ARSENIC	3.0 J	2.6 J
BARIUM	8.2	15.1
BERYLLIUM	0.09	0.2
CALCIUM	68.6	121
CHROMIUM, TOTAL	7.5	10.7
COBALT	1.1	2.8
COPPER	1.8 J	2.6 J
IRON	12500	10200
LEAD	9.4	8.3
MAGNESIUM	305	832
MANGANESE	16.8	52.1
MERCURY	0.11	0.1
NICKEL	2.2	5.4
NITRATE/NITRITE (AS	0.04 J	0.01 J
NITROGEN, AMMONIA (A	15.8 J	4.0 J
PHOSPHORUS, TOTAL OR	93.6 J	116 J
POTASSIUM	249	421
SELENIUM	1.2 J	
VANADIUM	21.6	17.3
ZINC	10.5	16.1

41J	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	7570
ARSENIC	2.0 J
BARIUM	8.0
BERYLLIUM	0.09
CALCIUM	56.8
CHROMIUM, TOTAL	6.8
COBALT	0.87
COPPER	1.5 J
IRON	10000
LEAD	6.7
MAGNESIUM	289
MANGANESE	18
MERCURY	0.1
NICKEL	2.0
NITRATE/NITRITE (AS	0.04 J
NITROGEN, AMMONIA (A	10.2 J
PHOSPHORUS, TOTAL OR	87.7 J
POTASSIUM	198
VANADIUM	17.3
ZINC	10.5

/oshu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR412

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 41C Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

41C	(1.5-2.0)BA
ANALYTE	ug/kg
ACETONE	18 J

41E	(0.0-0.5)AA
ANALYTE	ug/kg
ACETONE	32 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN BACKGROUND SOIL SAMPLES
Area 41: Shawme Crowell State Forest

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
41-3

DRAFT

/oshu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR413

MMR Groundwater Study

41A	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
FLUORANTHENE	22 J	20 J
PYRENE	20 J	

Route 6

41A 41B 41C 41D 41E 41F 41G 41H 41I 41J

45 30 15

281 500 281 600 281 700 281 800 281 900 282 000 282 100 282 200

834 400 834 300 834 200 834 100 834 000 833 900 833 800

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 41A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN BACKGROUND SOIL SAMPLES
Area 41: Shawme Crowell State Forest

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
41-4

/oahu/mmrdata/mmr/spatial/ogden/arcis/qd_mmr.aml map MMR414

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 41A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

41B	(0.0-0.6)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
DCE (1,1-BIS(CHLOROP	8.8	
DDT (1,1-BIS(CHLOROP	38	4.7
MCPA	25000 J	

41D	(0.0-0.5)AA
ANALYTE	ug/kg
2,4,5-T (TRICHLOROPH	39 NJ
DDE (1,1-BIS(CHLOROP	4.9 J
DDT (1,1-BIS(CHLOROP	12 J
DICAMBA	7.0 NJ
ENDOSULFAN SULFATE	2.2 NJ
MCPA	7300 NJ

41A	(0.0-0.5)AA	(0.0-0.5)AD
ANALYTE	ug/kg	ug/kg
OOT (1,1-BIS(CHLOROP	8.5	9.8
MCPA	8400 NJ	

41F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
OOT (1,1-BIS(CHLOROP	8.8 J	3.8
MCPA	13000 NJ	

41C	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	1.8 J
DOT (1,1-BIS(CHLOROP	8.9

41H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
OOE (1,1-BIS(CHLOROP	2.1 J	
OOT (1,1-BIS(CHLOROP	4.0 J	4.7
MCPA	12000 NJ	
PENTACHLOROPHENOL		32 NJ

41E	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	9.3
DDT (1,1-BIS(CHLOROP	23
MCPA	17000 J

41G	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
DOE (1,1-BIS(CHLOROP	2.0 J	
DDT (1,1-BIS(CHLOROP	7.7	4.2
MCPA	10000 J	

41J	(0.0-0.5)AA
ANALYTE	ug/kg
OOT (1,1-BIS(CHLOROP	2.0 J
MCPA	32000 J

41I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg
OOT (1,1-BIS(CHLOROP	5.0	6.2
MCPA	10000 J	

Route 6

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Data Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN BACKGROUND SOIL SAMPLES
Area 41: Shawme Crowell State Forest

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
41-5

DRAFT

/osha/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR415

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 42A Location Identifier
- mg/kg Milligrams Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN BACKGROUND SOIL SAMPLES Area 42: Four Ponds Conservation Area

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE

42-2

DRAFT

42A	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	1420	7230
ARSENIC	2.0	3.1
BARIUM	6.4	8.8
BERYLLIUM		0.22
CALCIUM	154	184
CHROMIUM, TOTAL	2.2	8.2
COBALT	0.54 J	2.4
COPPER	2.1 J	5.3
IRON	3120	7450
LEAD	12.6	4.8
MAGNESIUM	101	821
MANGANESE	10.8	37.1
NICKEL	0.73 J	4.1
NITRATE/NITRITE (AS	0.07	0.04
NITROGEN, AMMONIA (A	20 J	10.2 J
PHOSPHORUS, TOTAL OR	69.5	74.4
POTASSIUM	143	228
VANADIUM	11.7	12.6
ZINC	4.5	40.3

42B	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	5820	8440
ARSENIC	3.0	2.9
BARIUM	8.5	13.8
BERYLLIUM		0.23
CALCIUM	95.6	118
CHROMIUM, TOTAL	5.7	9.1
COBALT	0.87	2.5
COPPER	2.4 J	2.3
IRON	9930	6310
LEAD	11.8	4.7
MAGNESIUM	228	803
MANGANESE	15.5	43.8
NICKEL	1.7 J	4.5
NITRATE/NITRITE (AS	0.06	0.03
NITROGEN, AMMONIA (A	33 J	4.5 J
PHOSPHORUS, TOTAL OR	66.4	108
POTASSIUM	185	303
VANADIUM	16.3	14.1
ZINC	6.6	11.6

42C	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	1960	11900
ARSENIC	1.4 J	4.1
BARIUM	4.8	17.3
BERYLLIUM		0.3
CALCIUM	109	83.5
CHROMIUM, TOTAL	2.4	13.1
COBALT	0.53 J	4.1
COPPER	2.1 J	4.1
IRON	3870	12100
LEAD	8.2	8.3
MAGNESIUM	107	1490
MANGANESE	8.8	77.8
NICKEL	7.8	8.8
NITRATE/NITRITE (AS	0.06	0.02
NITROGEN, AMMONIA (A	18.4 J	
PHOSPHORUS, TOTAL OR	58.8	88.8
POTASSIUM	126	403
VANADIUM	10.2	18.9
ZINC	105	16.1

42D	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA	(1.5-2.0)BD
ANALYTE	mg/kg	mg/kg	mg/kg	mg/kg
ALUMINUM	5440	5630	7370	7570
ARSENIC	3.0	3.2	2.6	2.7
BARIUM	7.0	7.4	10.7	11.1
BERYLLIUM			0.22	0.22
CALCIUM	103	85.1	107	130
CHROMIUM, TOTAL	4.8	4.8	7.8	8.0
COBALT	1.1	1.0	2.9	2.8
COPPER	3.3	2.5	2.6	4.1
IRON	8490	8170	7270	7450
LEAD	14.2	14.4	4.1	4.7
MAGNESIUM	237	226	895	827
MANGANESE	14.8	14.2	53.4	58.9
NICKEL	1.0 J	1.3 J	4.2	18.1
NITRATE/NITRITE (AS	0.05	0.04	0.02	0.02
NITROGEN, AMMONIA (A	11.4 J	12.9 J		
PHOSPHORUS, TOTAL OR	101	88.3	86.1	76.6
POTASSIUM	180	178	285	327
SELENIUM	1.0 J			
VANADIUM	18.2	17.6	12.1	12.1
ZINC	14.1	7.8	10.8	175

42E	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	3700	6240
ARSENIC	2.7	2.1
BARIUM	4.4	8.8
BERYLLIUM		0.18
CALCIUM	68.8	110
CHROMIUM, TOTAL	3.3	8.5
COBALT	0.7 J	2.3
COPPER	1.8 J	2.1
IRON	6070	6160
LEAD	11.5	3.8
MAGNESIUM	156	707
MANGANESE	12	40.2
NICKEL	2.1 J	3.7
NITRATE/NITRITE (AS	0.05	0.02
NITROGEN, AMMONIA (A	12.1 J	
PHOSPHORUS, TOTAL OR	70.8	63.8
POTASSIUM	133	217
VANADIUM	14.5	10.3
ZINC	18.8	8.8

42F	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	8240	11200
ARSENIC	3.4	4.1
BARIUM	8.3	13.5
BERYLLIUM		0.26
CALCIUM	110	70.3
CHROMIUM, TOTAL	8.3	12.2
COBALT	1.5	3.5
COPPER	2.5 J	3.7
IRON	10600	11300
LEAD	14.7	5.8
MAGNESIUM	540	1250
MANGANESE	25.3	52.2
NICKEL	2.8 J	6.4
NITRATE/NITRITE (AS	0.05	0.02
NITROGEN, AMMONIA (A	11.4 J	
PHOSPHORUS, TOTAL OR	81	85.4
POTASSIUM	251	333
VANADIUM	21.9	18.3
ZINC	11	24.2

42G	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	4370	10500
ANTIMONY		0.9 J
ARSENIC	3.0	3.6
BARIUM	6.8	15.5
BERYLLIUM	0.06	0.24
CALCIUM	195	155
CHROMIUM, TOTAL	4.8	11.1
COBALT	0.78	3.2
COPPER	2.4 J	2.7
IRON	7740 J	10200 J
LEAD	14 J	5.8 J
MAGNESIUM	253	1050
MANGANESE	14.1	58.4
NICKEL	1.1 J	5.2
NITRATE/NITRITE (AS	0.04	0.02
NITROGEN, AMMONIA (A	21.2 J	
PHOSPHORUS, TOTAL OR	72.8 J	80.5 J
POTASSIUM	181	295
VANADIUM	21.4	17.1
ZINC	6.2 J	13.2 J

42H	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	857	5960
ARSENIC	1.1 J	2.0
BARIUM	5.8	11
BERYLLIUM	0.03 J	0.22
CALCIUM	76.3	160
CHROMIUM, TOTAL	1.6	6.0
COBALT		1.8
COPPER	1.2 J	2.4
IRON	3070 J	6710 J
LEAD	9.6 J	4.0 J
MAGNESIUM	59.1	480
MANGANESE	8.0	40.8
NICKEL		3.3
NITRATE/NITRITE (AS	0.06	0.04
NITROGEN, AMMONIA (A	11.2 J	2.7 J
PHOSPHORUS, TOTAL OR	48.1 J	89.1 J
POTASSIUM	118	207
VANADIUM	10.4	11.8
ZINC	3.8 J	8.7 J

42I	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	1120	6510
ARSENIC	1.2 J	1.7
BARIUM	5.4	8.7
BERYLLIUM	0.04 J	0.18
CALCIUM	80.9	107
CHROMIUM, TOTAL	1.3	5.6
COBALT		1.6
COPPER	1.8 J	2.0 J
IRON	2390 J	6140 J
LEAD	16.4 J	3.7 J
MAGNESIUM	80.6	413
MANGANESE	16.1	26.9
NICKEL	0.81 J	3.2 J
NITRATE/NITRITE (AS	0.06	0.02
NITROGEN, AMMONIA (A	18.5 J	4.4 J
PHOSPHORUS, TOTAL OR	45.8 J	75.5 J
POTASSIUM	124	178
VANADIUM	10.4	10.5
ZINC	8.3 J	8.1 J

42J	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	4500	11000
ANTIMONY		0.68 J
ARSENIC	2.4	3.7
BARIUM	6.3	17
BERYLLIUM	0.07	0.24
CALCIUM	65.1	80.6
CHROMIUM, TOTAL	4.6	11.7
COBALT	1.0	3.4
COPPER	2.0 J	3.1
IRON	5880 J	10700 J
LEAD	12.9 J	6.0 J
MAGNESIUM	254	1300
MANGANESE	14.4	66.3
NICKEL	1.3 J	6.1
NITRATE/NITRITE (AS	0.04	0.02
NITROGEN, AMMONIA (A	16.8 J	3.5 J
PHOSPHORUS, TOTAL OR	63.4 J	63.1 J
POTASSIUM	171	369
SELENIUM		0.87 J
VANADIUM	16.1	17.2
ZINC	10.7 J	14.3 J

42K	(0.0-0.5)AA	(1.5-2.0)BA
ANALYTE	mg/kg	mg/kg
ALUMINUM	5270	10200
ANTIMONY		0.67 J
ARSENIC	2.7	2.2
BARIUM	8.9	25.5
BERYLLIUM	0.1	0.24
CALCIUM	83.3 J	66.3
CHROMIUM, TOTAL	5.5	8.0
COBALT	0.84	2.6
COPPER	2.6 J	3.4
IRON	11400 J	8410 J
LEAD	13.4 J	6.1 J
MAGNESIUM	182	581
MANGANESE	13.3	104
NICKEL	1.1 J	4.2
NITRATE/NITRITE (AS	0.04	0.01
NITROGEN, AMMONIA (A	19.4 J	3.2 J
PHOSPHORUS, TOTAL OR	79.5 J	81.8 J
POTASSIUM	185	222
SELENIUM	1.3 J	1.1 J
VANADIUM	20.2	16
ZINC	9.5 J	12 J

/onhw/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR422

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 42A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

42A	(0.0-0.5)AA
ANALYTE	ug/kg
FLUORANTHENE	30 J
PYRENE	31 J

42B	(0.0-0.5)AA
ANALYTE	ug/kg
FLUORANTHENE	30 J
PYRENE	31 J

42C	(0.0-0.5)AA
ANALYTE	ug/kg
PYRENE	36 J

42G	(0.0-0.5)AA
ANALYTE	ug/kg
PYRENE	28 J

42I	(0.0-0.5)AA
ANALYTE	ug/kg
CHRYSENE	30 J
FLUORANTHENE	44 J
PHENANTHRENE	31 J
PYRENE	36 J

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MAGGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MAGGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN BACKGROUND SOIL SAMPLES
Area 42: Four Ponds Conservation Area

N

0 225
FEET
0 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
42-4

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR424

DRAFT

MMR Groundwater Study

LEGEND

- Soil Sample Grids
- Groundwater Wells
- 42A Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

42D	(0.0-0.5)AA	(0.0-0.5)AD	(1.5-2.0)BA
ANALYTE	ug/kg	ug/kg	ug/kg
DDE (1,1-BIS(CHLOROP	2.2 J	2.0 J	
DDT (1,1-BIS(CHLOROP	3.8 J	2.3 J	
DICAMBA	17 NJ		
HEPTACHLOR	2.3		
MCPA	32000 J	24000 NJ	
MCPP	5900 NJ		33000 J
SILVEX (2,4,5-TP)	6.7 J		

42C	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.8 J
DDT (1,1-BIS(CHLOROP	4.2 J
MCPA	12000 NJ

42E	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.1 J
DDT (1,1-BIS(CHLOROP	8.3

42F	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.5 J
DDT (1,1-BIS(CHLOROP	4.1 J
MCPA	21000 NJ

42B	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	3.5 J
DDT (1,1-BIS(CHLOROP	3.5 J
MCPA	8100 NJ

42A	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.6 J
DDT (1,1-BIS(CHLOROP	3.3 J
MCPA	21000 J

42G	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	4.2
DDT (1,1-BIS(CHLOROP	13
MCPA	22000 J

42K	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	2.6 J
DDT (1,1-BIS(CHLOROP	4.0 J
MCPA	24000 NJ

42H	(0.0-0.5)AA
ANALYTE	ug/kg
MCPA	18000 NJ

42I	(0.0-0.5)AA
ANALYTE	ug/kg
DDE (1,1-BIS(CHLOROP	3.8 J
DDT (1,1-BIS(CHLOROP	8.6
MCPA	42000 NJ

42J	(0.0-0.5)AA
ANALYTE	ug/kg
MCPA	31000 NJ

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN BACKGROUND SOIL SAMPLES Area 42: Four Ponds Conservation Area

N

0 225
0 FEET 69
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
42-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR425

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D43A Location Identifier
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L

IMAGE DATE: 1997

All sample depth measurements are in feet

P43C - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	5.0
ALUMINUM	121
BARIUM	5.1 J
CALCIUM	3520
IRON	386
LEAD	2.5 J
MAGNESIUM	1580
MANGANESE	1.4
NITRATE/NITRITE (AS	0.18
NITROGEN, AMMONIA (A	0.11
PHOSPHORUS, TOTAL OR	0.05 J
POTASSIUM	457 J
SODIUM	7700
SULFATE (AS SO4)	6.3

D43C - Sediment	(0.5-1.0)AA
ANALYTE	mg/kg
ALUMINUM	815 J
BARIUM	17.3 J
CALCIUM	5310 J
CHROMIUM, TOTAL	12.5 J
COBALT	0.8 J
COPPER	2.5 J
IRON	817 J
MAGNESIUM	968 J
MANGANESE	5.3 J
MOLYBDENUM	1.2 J
NITRATE/NITRITE (AS	0.4 J
NITROGEN, AMMONIA (A	83 J
PHOSPHORUS, TOTAL OR	50.6 J
VANADIUM	3.7 J

D43D - Sediment	(0.5-1.0)AA
ANALYTE	mg/kg
ALUMINUM	493
ANTIMONY	1.3 J
BARIUM	3.3
BERYLLIUM	0.09
CALCIUM	773
CHROMIUM, TOTAL	7.3 J
IRON	354
LEAD	1.9
MAGNESIUM	132
MANGANESE	2.1
NITRATE/NITRITE (AS	0.21
NITROGEN, AMMONIA (A	6.7 J
PHOSPHORUS, TOTAL OR	54.2 J

P43D - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	6.0
CALCIUM	2310
MAGNESIUM	1410
MANGANESE	1.6
NITRATE/NITRITE (AS	0.25
PHOSPHORUS, TOTAL OR	0.03 J
POTASSIUM	514
SODIUM	9790
SULFATE (AS SO4)	6.5

D43E - Sediment	(0.5-1.0)AA
ANALYTE	mg/kg
ALUMINUM	297
BARIUM	3.8
CALCIUM	1040
CHROMIUM, TOTAL	9.0
IRON	320
LEAD	5.6
MAGNESIUM	183
MANGANESE	6.9
MOLYBDENUM	0.86 J
NITRATE/NITRITE (AS	0.58
NITROGEN, AMMONIA (A	27.6
PHOSPHORUS, TOTAL OR	48 J
SELENIUM	1.7

P43E - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	5.0
ALUMINUM	124
ARSENIC	4.6 J
BARIUM	5.3 J
CALCIUM	2480
IRON	231
LEAD	2.4 J
MAGNESIUM	1390
MANGANESE	2.7
NITRATE/NITRITE (AS	0.47
NITROGEN, AMMONIA (A	0.02 J
PHOSPHORUS, TOTAL OR	0.03 J
POTASSIUM	723
SODIUM	8800
SULFATE (AS SO4)	6.3

P43B - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	4.0
ALUMINUM	51.1
BARIUM	4.4 J
CALCIUM	2380
IRON	174
MAGNESIUM	1480
MANGANESE	7.7
NITRATE/NITRITE (AS	0.25
NITROGEN, AMMONIA (A	0.05 J
PHOSPHORUS, TOTAL OR	0.02 J
POTASSIUM	548 J
SODIUM	10500
SULFATE (AS SO4)	6.6

D43B - Sediment	(0.5-1.0)AA
ANALYTE	mg/kg
ALUMINUM	5830 J
BARIUM	50.4 J
CALCIUM	3800 J
CHROMIUM, TOTAL	4.7 J
COBALT	2.7 J
COPPER	4.5 J
IRON	1090 J
MAGNESIUM	2070 J
MANGANESE	7.6 J
NITRATE/NITRITE (AS	0.99 J
NITROGEN, AMMONIA (A	403 J
PHOSPHORUS, TOTAL OR	23.2 J
SELENIUM	6.9 J
VANADIUM	7.0 J

P43F - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	7.0
ALUMINUM	34.8
BARIUM	4.8 J
CALCIUM	3090
MAGNESIUM	1950
MANGANESE	0.86
NITRATE/NITRITE (AS	0.89
PHOSPHORUS, TOTAL OR	0.03 J
POTASSIUM	612 J
SODIUM	10200
SULFATE (AS SO4)	7.4

D43F - Sediment	(1.0-1.75)AA
ANALYTE	mg/kg
ALUMINUM	588
BARIUM	2.6
CALCIUM	239
CHROMIUM, TOTAL	7.1
COBALT	0.49 J
COPPER	1.3 J
IRON	1660
MAGNESIUM	188
MANGANESE	11
NITRATE/NITRITE (AS	0.05
NITROGEN, AMMONIA (A	6.3 J
PHOSPHORUS, TOTAL OR	37.7 J
POTASSIUM	70 J
VANADIUM	2.8

D43A - Sediment	(0.0-0.5)AA
ANALYTE	mg/kg
ALUMINUM	92
BARIUM	2.5
CALCIUM	88.8
CHROMIUM, TOTAL	0.98
COBALT	0.67 J
COPPER	0.88 J
IRON	64.3
MANGANESE	2.7
MOLYBDENUM	0.48 J
NITRATE/NITRITE (AS	0.08
PHOSPHORUS, TOTAL OR	4.0 J
VANADIUM	1.2 J

P43A - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	7.0
ALUMINUM	26.3
CALCIUM	2240
MAGNESIUM	1420
MANGANESE	2.0
NITRATE/NITRITE (AS	0.43
NITROGEN, AMMONIA (A	0.04 J
PHOSPHORUS, TOTAL OR	0.01 J
POTASSIUM	382 J
SODIUM	9180
SULFATE (AS SO4)	6.3

D43H - Sediment	(0.5-1.0)AA
ANALYTE	mg/kg
ALUMINUM	15800 J
ANTIMONY	3.3 J
ARSENIC	3.7 J
BARIUM	37.3 J
BERYLLIUM	0.46 J
CALCIUM	3140 J
CHROMIUM, TOTAL	15.8 J
IRON	11400 J
LEAD	13.7 J
MAGNESIUM	1810 J
MANGANESE	74.1 J
MOLYBDENUM	3.7 J
NITRATE/NITRITE (AS	0.28 J
NITROGEN, AMMONIA (A	137 J
PHOSPHORUS, TOTAL OR	123 J
SELENIUM	7.8 J
VANADIUM	31.1 J
ZINC	29.1 J

P43H - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	6.0
ALUMINUM	126
BARIUM	5.7 J
BORON	17.5 J
CALCIUM	2550
IRON	182 J
MAGNESIUM	1600
MANGANESE	5.2
NICKEL	2.2 J
NITRATE/NITRITE (AS	0.44
NITROGEN, AMMONIA (A	0.03 J
PHOSPHORUS, TOTAL OR	0.03 J
POTASSIUM	557
SODIUM	10900
SULFATE (AS SO4)	6.5

P43G - Surface Water	(0.0-0.1)AA
ANALYTE	mg/L | ug/L
ALKALINITY, TOTAL (A	7.0
ALUMINUM	16.7 J
ARSENIC	6.0 J
BARIUM	4.6 J
CALCIUM	2420
MAGNESIUM	1570
MANGANESE	1.9
NITRATE/NITRITE (AS	0.5
NITROGEN, AMMONIA (A	0.03 J
PHOSPHORUS, TOTAL OR	0.02 J
POTASSIUM	604 J
SODIUM	10300
SULFATE (AS SO4)	8.8

D43G - Sediment	(0.5-1.0)AA
ANALYTE	mg/kg
ALUMINUM	592 J
BARIUM	14.4 J
CALCIUM	1480 J
IRON	1350 J
MAGNESIUM	433 J
MANGANESE	7.9 J
MOLYBDENUM	1.1 J
NITRATE/NITRITE (AS	0.16 J
NITROGEN, AMMONIA (A	54.2 J
PHOSPHORUS, TOTAL OR	25.6 J
THALLIUM	3.2 J
VANADIUM	4.1 J

43A 43B 43C 43D 43E 43F 43G 43H

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 43: Upper Pond

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/27/98							

FIGURE 43-2

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR432

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D43B Location Identifier
- ug/kg Micrograms Per Kilogram
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

D43D - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	2.0 J

P43D - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	3.0 J
CHLOROFORM	0.6 J

D43E - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
CHLOROFORM	4.0 J

P43E - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	4.0 J
MTBE	0.62 J

D43C - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
ACETONE	620 J
CARBON DISULFIDE	27 J
MEK	91 J

D43B - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
ACETONE	620 J
MEK	120 J

P43B - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	4.0 J

D43F - Sediment	(1.0-1.75)AA
ANALYTE	ug/kg
METHYLENE CHLORIDE	3.0 J

P43F - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	4.0 J
MTBE	1.5 J

D43G - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
ACETONE	1400 J
MEK	97 J
TOLUENE	19 J

D43H - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
ACETONE	8700 J
MEK	160 J

P43H - Surface Water	(0.0-0.1)AA
ANALYTE	ug/L
ACETONE	4.0 J

43A 43B 43C 43D 43E 43F 43G 43H

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 43: Upper Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/30/98							

FIGURE
43-3

DRAFT

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR433

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D43E Location Identifier
- ug/kg Micrograms Per Kilogram
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF SEMIVOLATILES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES Area 43: Upper Pond

N

0 150
FEET
0 46
METERS

D43E - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
4-METHYLPHENOL (P-CR	160 J
ACENAPHTHENE	39 J
ANTHRACENE	54 J
BENZO(A)ANTHRACENE	120 J
BENZO(A)PYRENE	94 J
BENZO(B)FLUORANTHENE	70 J
BENZO(G,H,I)PERYLENE	31 J
BENZO(K)FLUORANTHENE	86 J
CHRYSENE	120 J
FLUORANTHENE	270 J
FLUORENE	29 J
INDENO(1,2,3-C,D)PYR	32 J
PHENANTHRENE	300 J
PYRENE	260 J

D43H - Sediment	(0.5-1.0)AA
ANALYTE	ug/kg
FLUORANTHENE	73 J

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
43-4

/oahu/mmrdata/mmr/spatial/ogden/aml/qd_mmr.aml map MMR434

DRAFT

MMR Groundwater Study

LEGEND

- Surface Water/Sediment Samples
- Groundwater Wells
- D43B Location Identifier
- ug/kg Micrograms Per Kilogram
- NJ Tentatively Identified, Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP

NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF PESTICIDES/HERBICIDES IN BACKGROUND SURFACE WATER/SEDIMENT SAMPLES
Area 43: Upper Pond

N

0 150
FEET
0 46
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
06/26/98							

FIGURE
43-5

/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR435

DRAFT

MMR Groundwater Study

LEGEND

- Storm Water Samples
- Storm Water Sites Not Sampled
- Groundwater Wells
- T001 Location Identifier
- mg/L Milligrams Per Liter
- ug/L Micrograms Per Liter
- J Estimated Quantity

Metallic analytes reported in ug/L
Nitrogen, phosphorus, hardness, chloride, sulfate, alkalinity, and TOC reported in mg/L

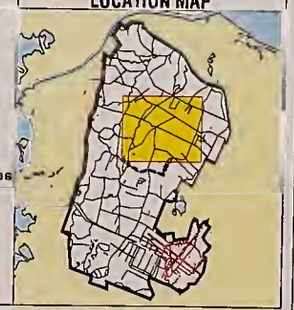
IMAGE DATE: 1997

All sample depth measurements are in feet

BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF METALS/INORGANICS IN STORM WATER SAMPLES

N

0 1200
FEET
0 366
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE

ST-2

DRAFT

005	(0.0-0.0)XA	(0.0-0.0)XD
ANALYTE	mg/L | ug/L	
ALUMINUM	40700	35700
ARSENIC	13.6	12.2
BARIUM	54.6	55.3
BERYLLIUM	0.88	0.88
CALCIUM	705	874
CHLORIDE (AS CL)	1.3 J	2.9 J
CHROMIUM, TOTAL	43.6	39.7
COBALT	13.8	12.8
COPPER	16.8	16.4
IRON	38700	35500
LEAD	24.4	18.2
MAGNESIUM	4440	4710
MANGANESE	295	282
MOLYBDENUM	2.2 J	
NICKEL	21.2 J	18.8 J
NITRATE/NITRITE (AS	0.08 J	0.14 J
NITROGEN, AMMONIA (A	0.05 J	0.05 J
PHOSPHORUS, TOTAL OR	0.07	0.18
POTASSIUM	2440	2610
SODIUM		332 J
SULFATE (AS SO4)	7.2 J	8.8 J
VANADIUM	65.2	58
ZINC	56.8	55.8

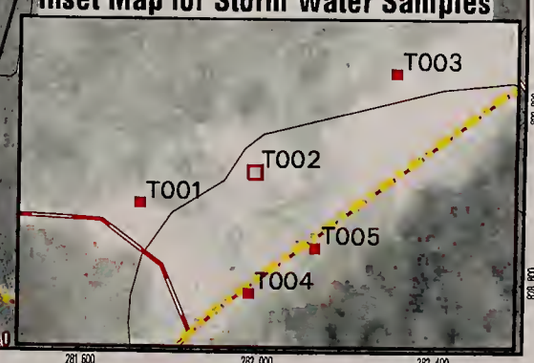
003	(0.0-0.0)XA
ANALYTE	mg/L | ug/L
ALUMINUM	64700
ARSENIC	25
BARIUM	95.6
BERYLLIUM	1.8
CALCIUM	488
CHLORIDE (AS CL)	1.8 J
CHROMIUM, TOTAL	78.3
COBALT	24.4
COPPER	28.3
IRON	89000
LEAD	36.7
MAGNESIUM	9200
MANGANESE	425
NICKEL	39.3 J
NITRATE/NITRITE (AS	0.18 J
NITROGEN, AMMONIA (A	0.05 J
PHOSPHORUS, TOTAL OR	0.21
POTASSIUM	4000
SULFATE (AS SO4)	10.8 J
VANADIUM	104
ZINC	103

001	(0.0-0.0)XA
ANALYTE	mg/L | ug/L
ALUMINUM	148000
ANTIMONY	6.2 J
ARSENIC	53.2
BARIUM	177
BERYLLIUM	3.5
CALCIUM	1040
CHLORIDE (AS CL)	0.8 J
CHROMIUM, TOTAL	188
COBALT	51.6
COPPER	63.2
HARDNESS (AS CACO3)	88
IRON	156000
LEAD	79.3
MAGNESIUM	21300
MANGANESE	897
MOLYBDENUM	3.8
NICKEL	88.2 J
NITRATE/NITRITE (AS	0.06 J
NITROGEN, AMMONIA (A	0.05 J
PHOSPHORUS, TOTAL OR	0.09
POTASSIUM	7140
SELENIUM	7.3
SULFATE (AS SO4)	3.3 J
THALLIUM	8.4 J
VANADIUM	240
ZINC	226

006	(0.0-0.0)XA
ANALYTE	mg/L | ug/L
ALUMINUM	55700
ARSENIC	12.1
BARIUM	83.4
BERYLLIUM	0.81
CALCIUM	540
CHLORIDE (AS CL)	3.4 J
CHROMIUM, TOTAL	49.2
COBALT	10.3
COPPER	13.8
IRON	45800
LEAD	32.7
MAGNESIUM	3690
MANGANESE	159
MOLYBDENUM	4.1
NICKEL	22.8 J
NITRATE/NITRITE (AS	0.11 J
NITROGEN, AMMONIA (A	0.07 J
PHOSPHORUS, TOTAL OR	0.09
POTASSIUM	2180
SODIUM	562
SULFATE (AS SO4)	11.1 J
VANADIUM	90.1
ZINC	55

004	(0.0-0.0)XA
ANALYTE	mg/L | ug/L
ALUMINUM	37300
ARSENIC	10.9
BARIUM	51.5
BERYLLIUM	0.82
CALCIUM	608
CHLORIDE (AS CL)	1.8 J
CHROMIUM, TOTAL	40.4
COBALT	11.8
COPPER	14.5
IRON	35400
LEAD	21.5
MAGNESIUM	4230
MANGANESE	234
NICKEL	20.8 J
NITRATE/NITRITE (AS	0.1 J
NITROGEN, AMMONIA (A	0.06 J
PHOSPHORUS, TOTAL OR	0.07
POTASSIUM	2240
SULFATE (AS SO4)	10.5 J
THALLIUM	7.5 J
VANADIUM	60.3
ZINC	52.8

Inset Map for Storm Water Samples



/oahu/mmrdata/mmr/spatial/ogden/amls/qd_mmr.aml map MMR1002

MMR Groundwater Study

LEGEND

- Storm Water Samples
- Storm Water Sites Not Sampled
- Groundwater Wells
- T003 Location Identifier
- ug/L Micrograms Per Liter
- J Estimated Quantity

IMAGE DATE: 1997
All sample depth measurements are in feet

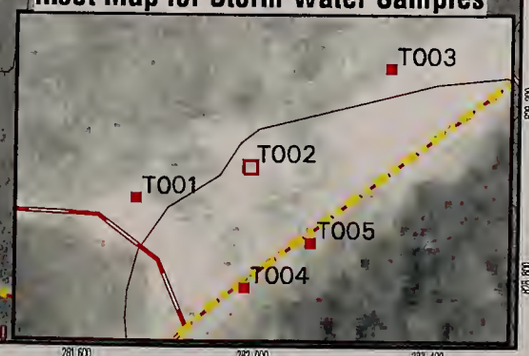
006	(0.0-0.0)XA
ANALYTE	ug/L
ACETONE	7.0 J

005	(0.0-0.0)XA
ANALYTE	ug/L
ACETONE	7.0 J

003	(0.0-0.0)XA
ANALYTE	ug/L
ACETONE	5.0 J

004	(0.0-0.0)XA
ANALYTE	ug/L
ACETONE	5.0 J

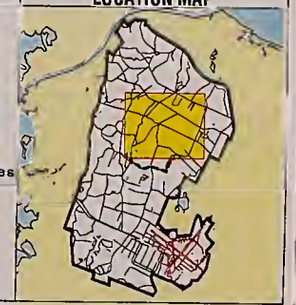
Inset Map for Storm Water Samples



BASEMAP LEGEND

- Impact Area Boundary
- Water Bodies
- Roads
- Paths
- Power/Transmission Lines
- 3 Meter Contours

LOCATION MAP



NOTES & SOURCES

Map coordinates: Stateplane, NAD83, Zone 4151, Meters

ORTHOPHOTOGRAPHY: 1:5000 digital black & white orthophotos
Source: MASSGIS; Resolution: 1/2 meter; Date Flown: March 1997

TOPOGRAPHY: 3 meter contours generated from digital terrain models (DTMs)
Source: MASSGIS

TITLE

CONCENTRATIONS OF VOLATILES IN STORM WATER SAMPLES

N

0 1200
FEET
0 366
METERS

DATE	REV.	DRWN.	INIT.	CHKD.	INIT.	APPR.	INIT.
07/01/98							

FIGURE
ST-3

/oahu/mmrdata/mmr/spatial/ogden/arcls/qd_mmr.aml map MMR1003

DRAFT

Figure L. Geophysical resistivity log for MW-10.

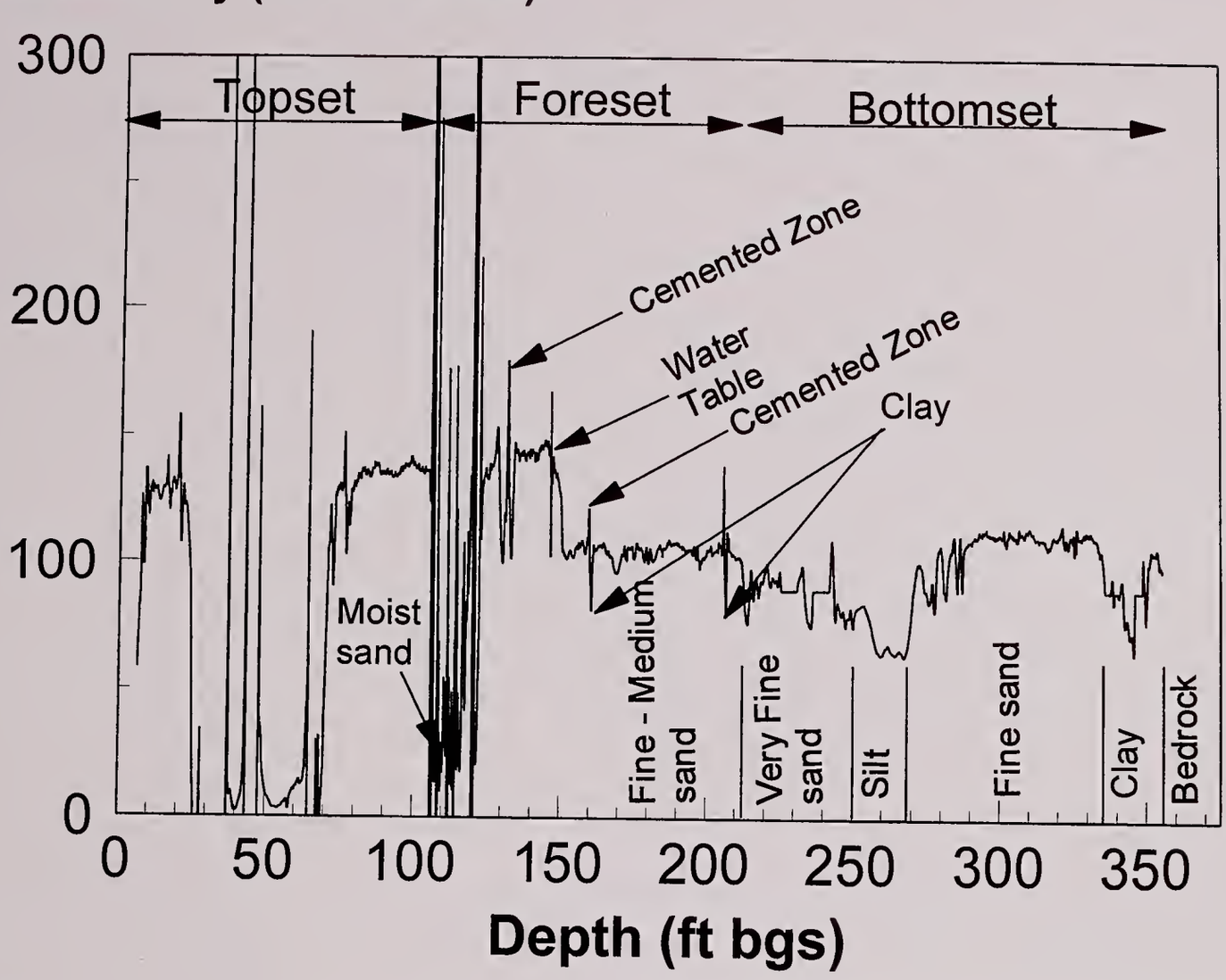
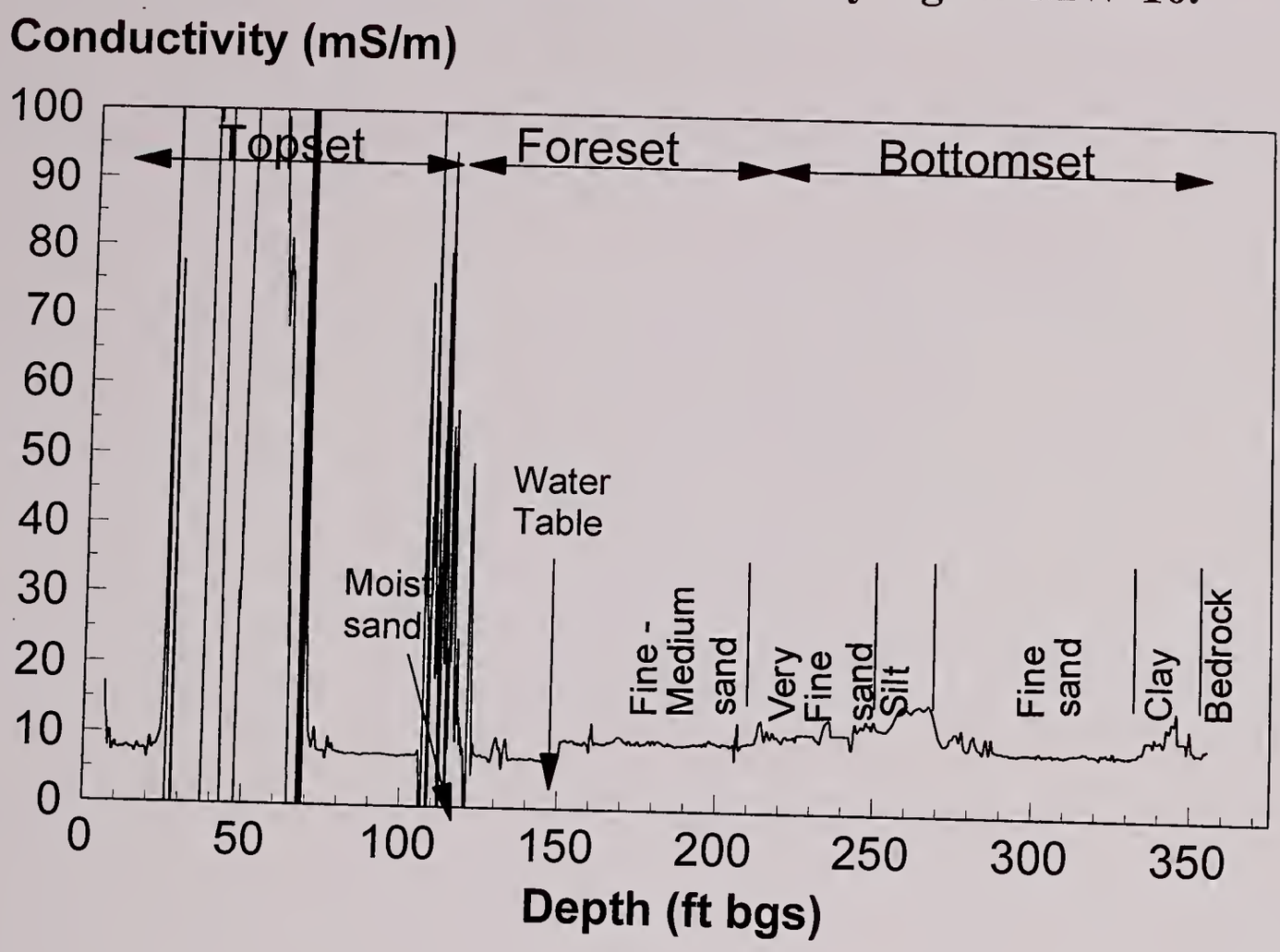
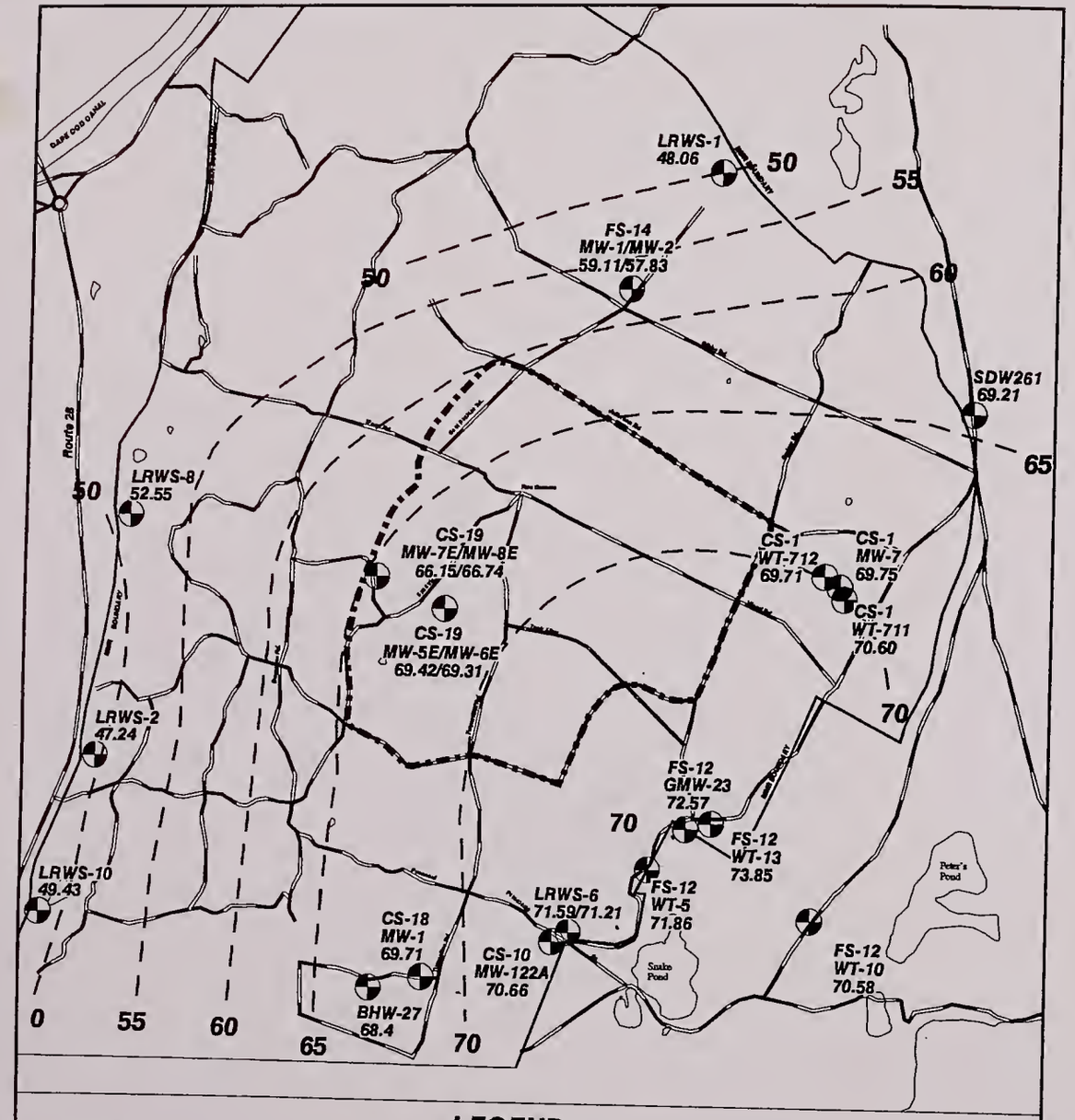


Figure M. Geophysical conductivity log for MW-10.





LEGEND

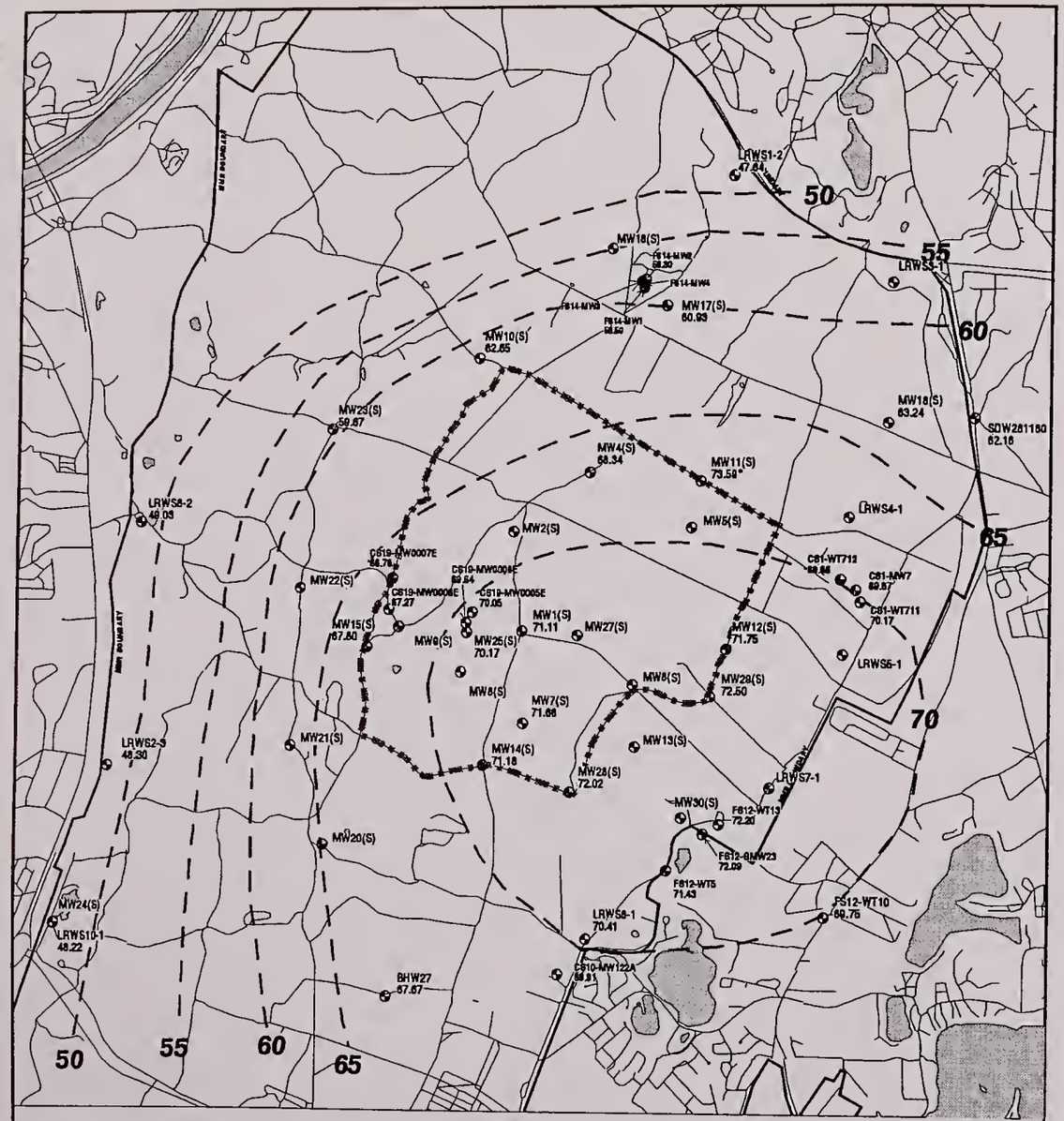
- IMPACT AREA BOUNDARY
- GROUNDWATER CONTOUR (FEET ABOVE MSL)
- MONITORING WELL
- 71.21 GROUNDWATER ELEVATION (FEET ABOVE MSL)

OGDEN

DRAFT
Groundwater Contour Map
June 27, 1997

FIGURE
N

/scrol/mxmd/plots/figures/gw_contour.aml



OGDEN

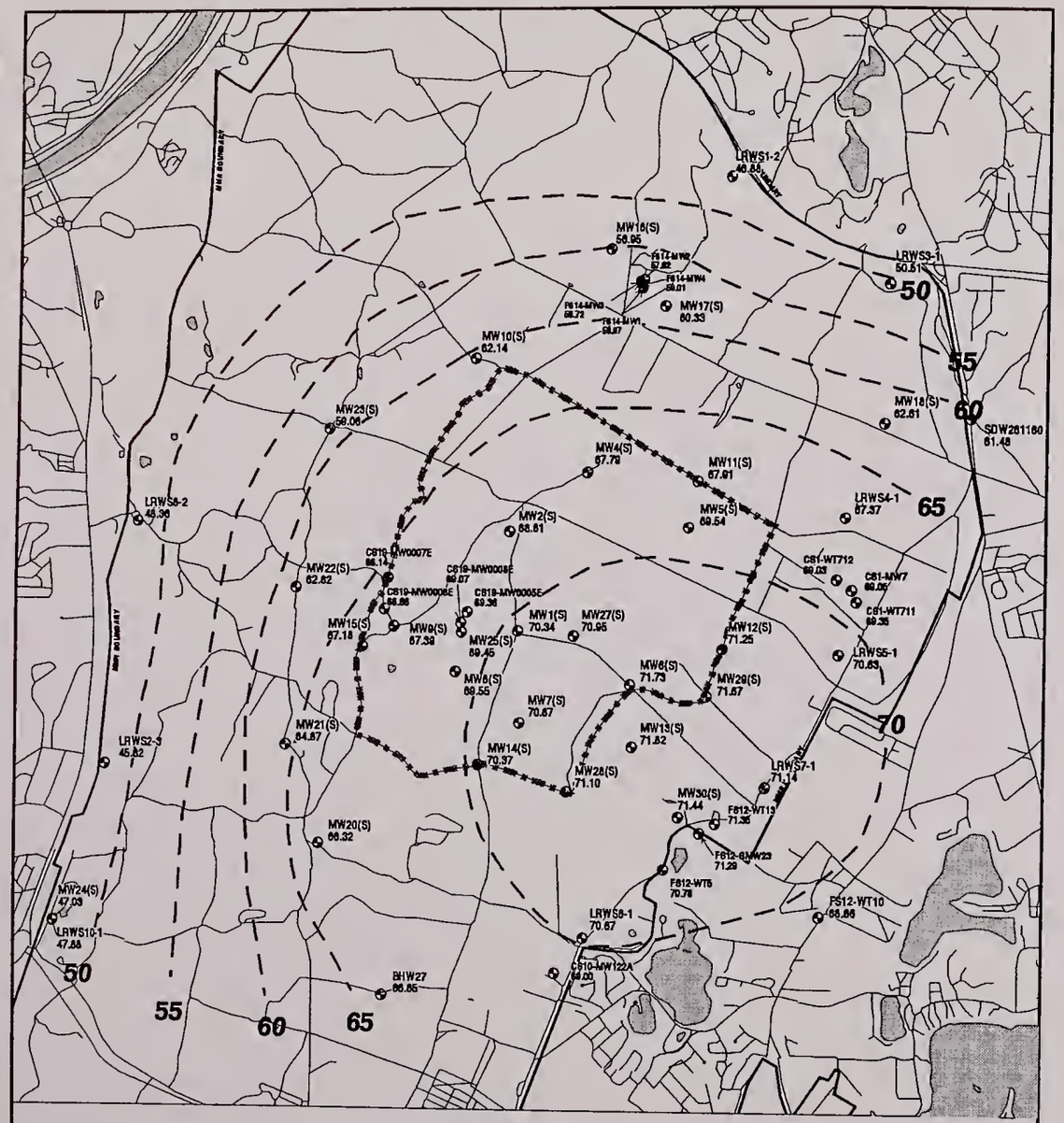
DRAFT
Groundwater Contour Map
October 3, 1997

FIGURE

O

/nct/pa1as/oahu/mcardata/mcar/spatial/ogden/plots/figures/gwcont-fr.aml

03/02/98



OGDEN

DRAFT
Groundwater Contour Map
December 30, 1997

FIGURE

P

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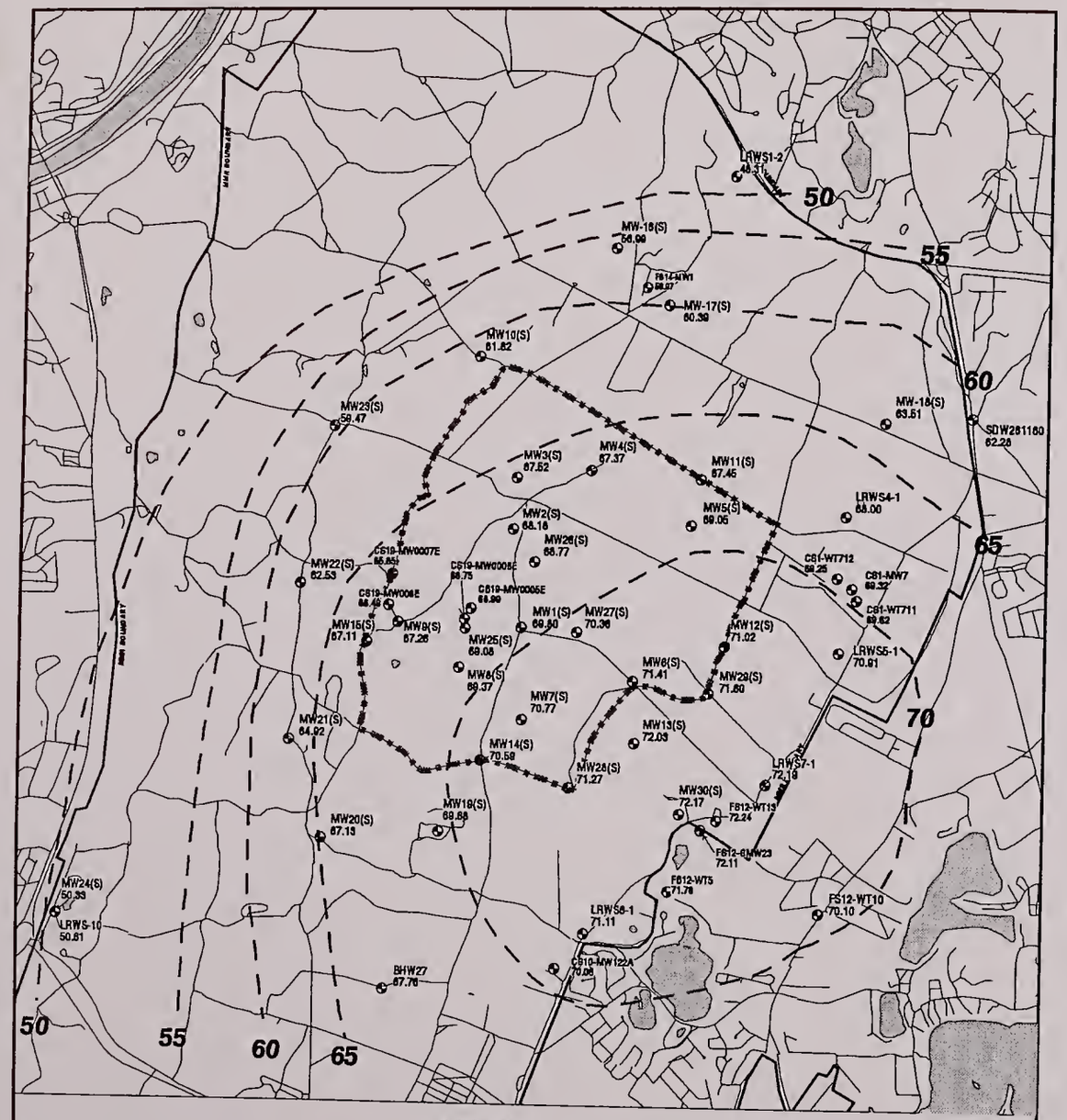
03/02/98



OGDEN

DRAFT
Groundwater Contour Map
April 1, 1998

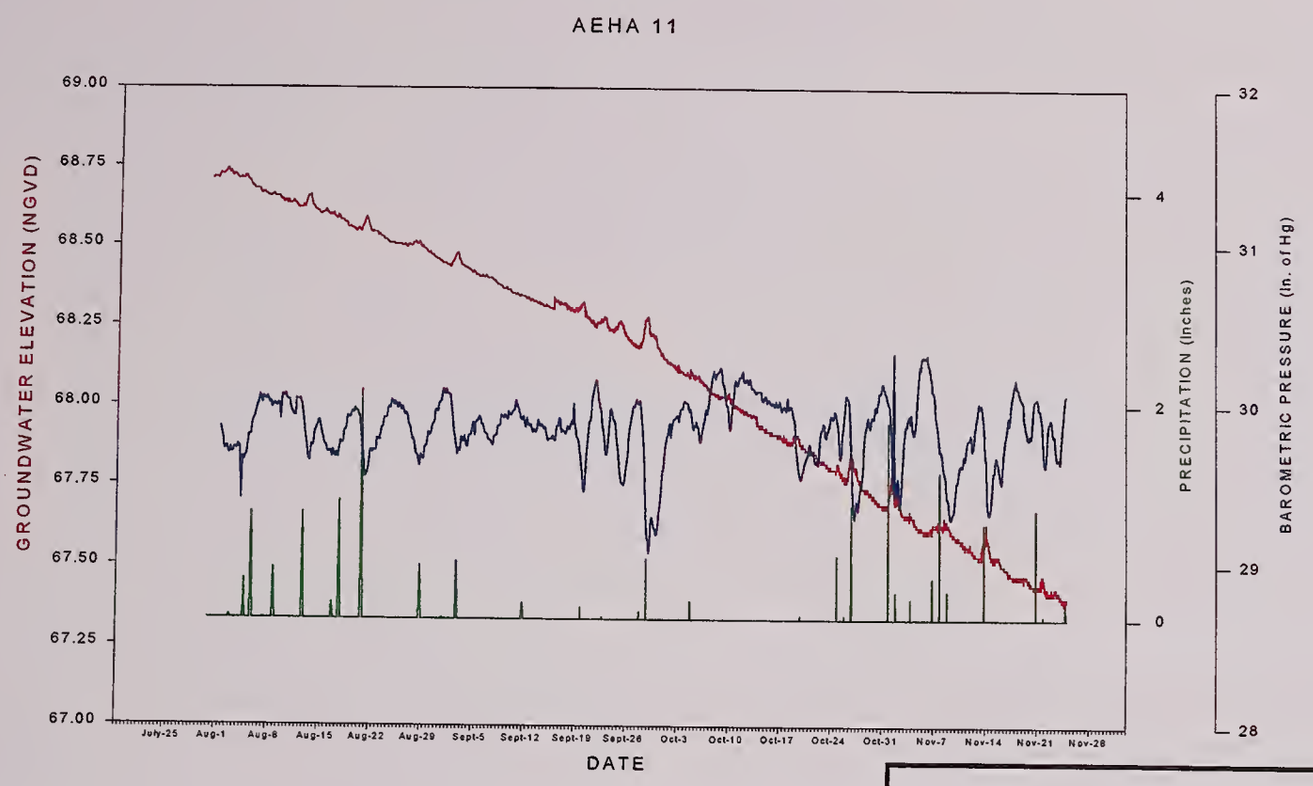
FIGURE

Q

/oahu/rootdata/mmt/spatial/ogden/plots/figures/gwcon4jr.aml

04/16/98

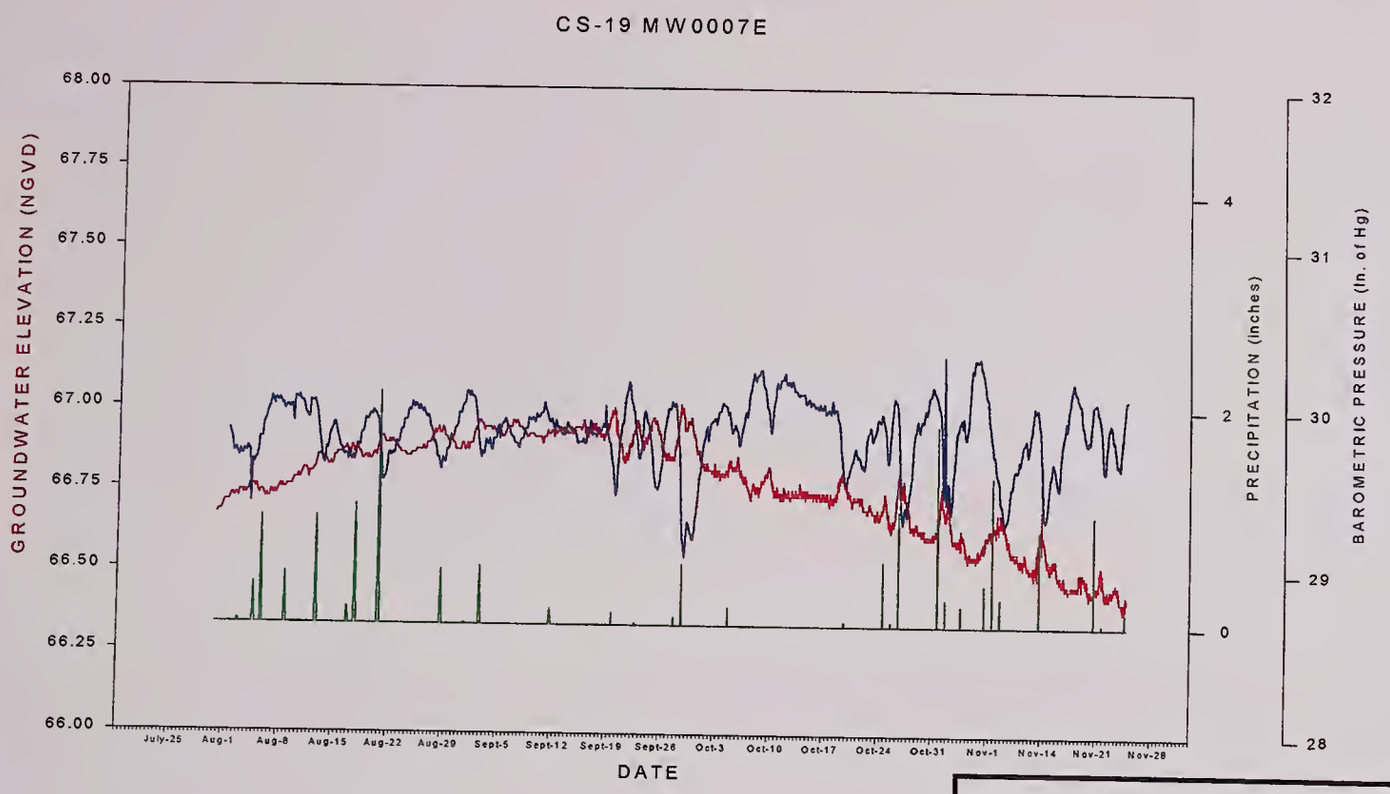
Figure R. Hydrograph of AEHA-11



Camp Edwards Impact Area Groundwater Study

Hydrograph of AEHA-11
7/31/97 through 11/25/97

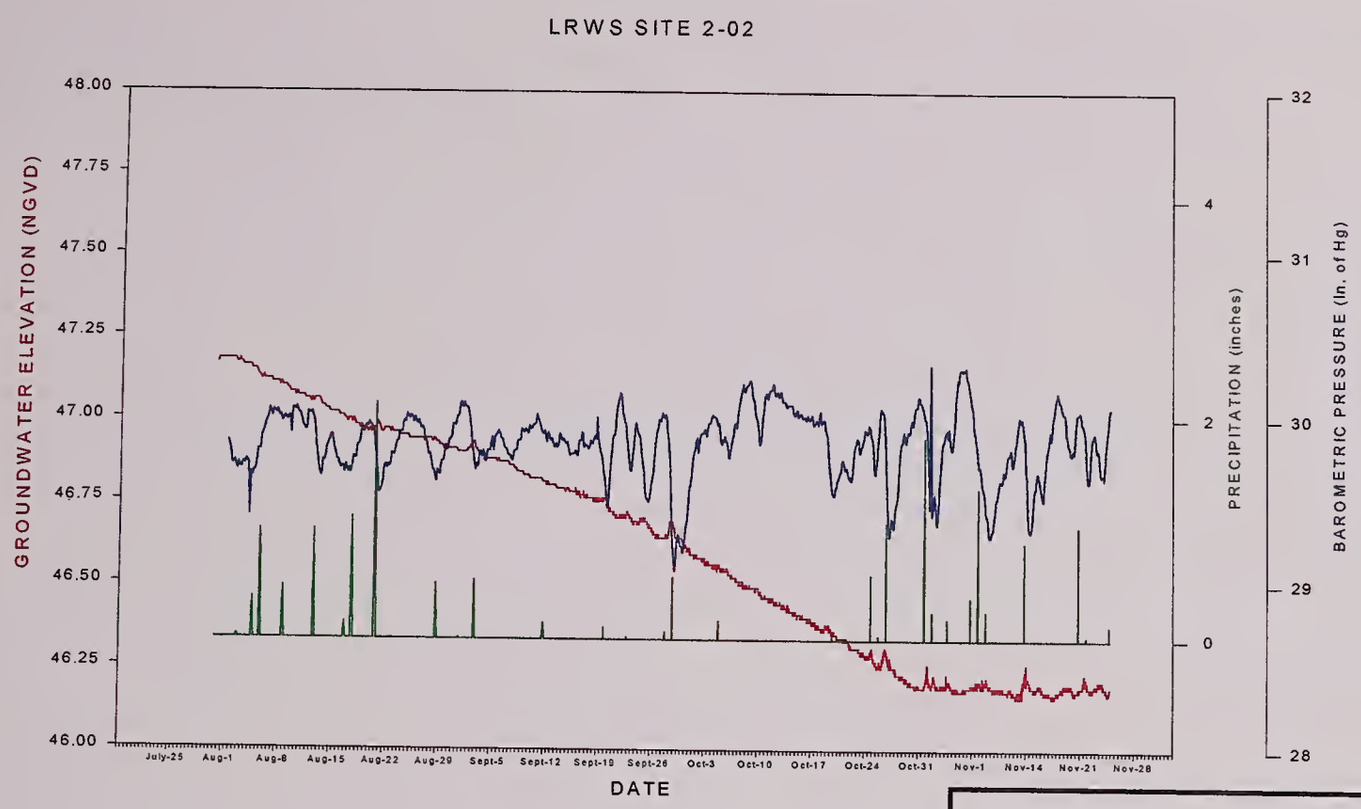
Figure S. Hydrograph of CS19-MW0007E.



Camp Edwards Impact Area Groundwater Study

Hydrograph of CS-19 MW0007E
7/31/97 through 11/25/97

Figure T. Hydrograph of LRWS Site 2-02.



Camp Edwards Impact Area Groundwater Study

Hydrograph of LRWS Site 2-02
7/31/97 through 11/25/97

Figure U. Comparison of ammonia with RDX/HMX & TNT/DNT by depth.

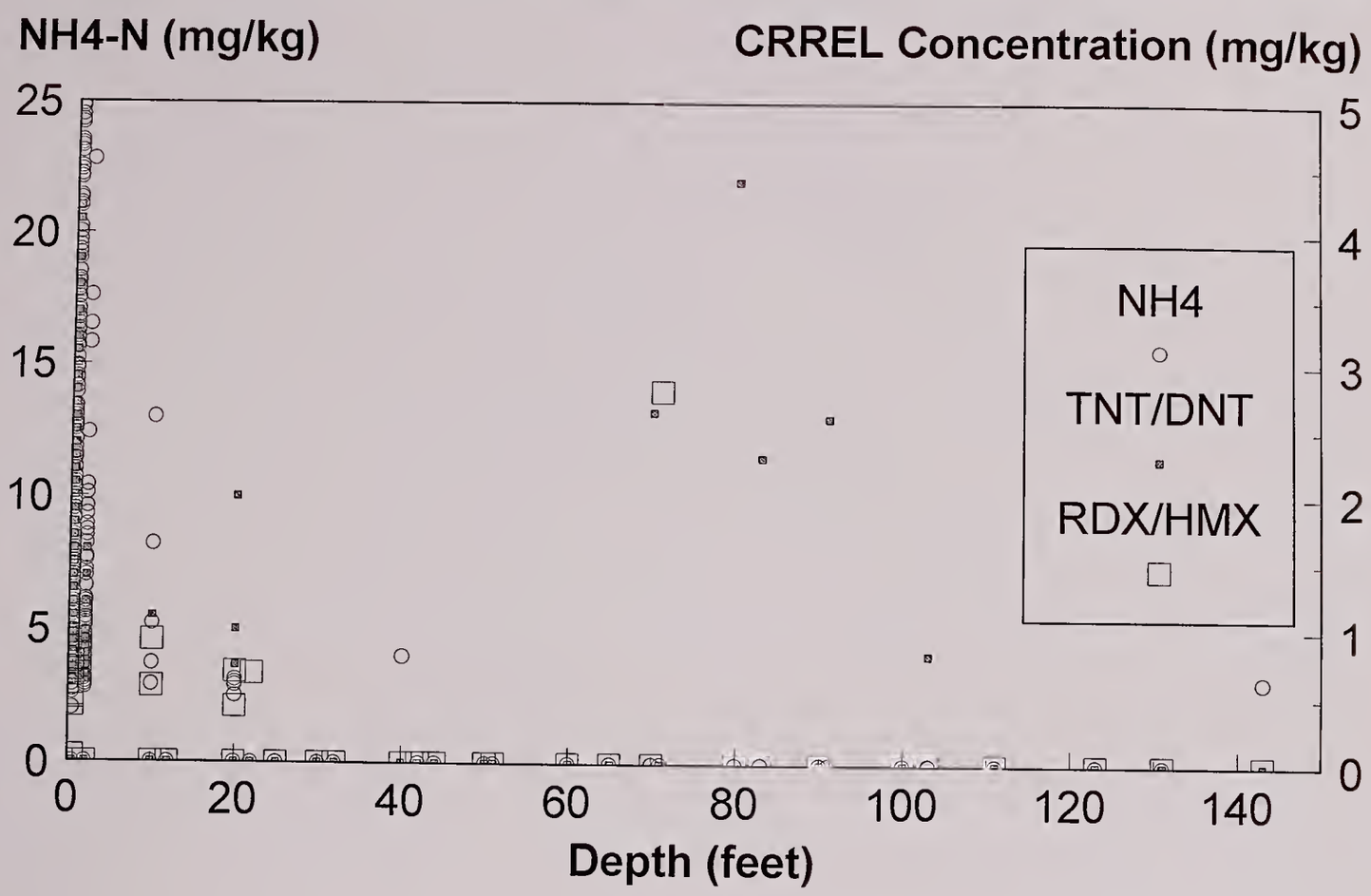


Figure V. Cumulative probability plot for BEHP in groundwater.

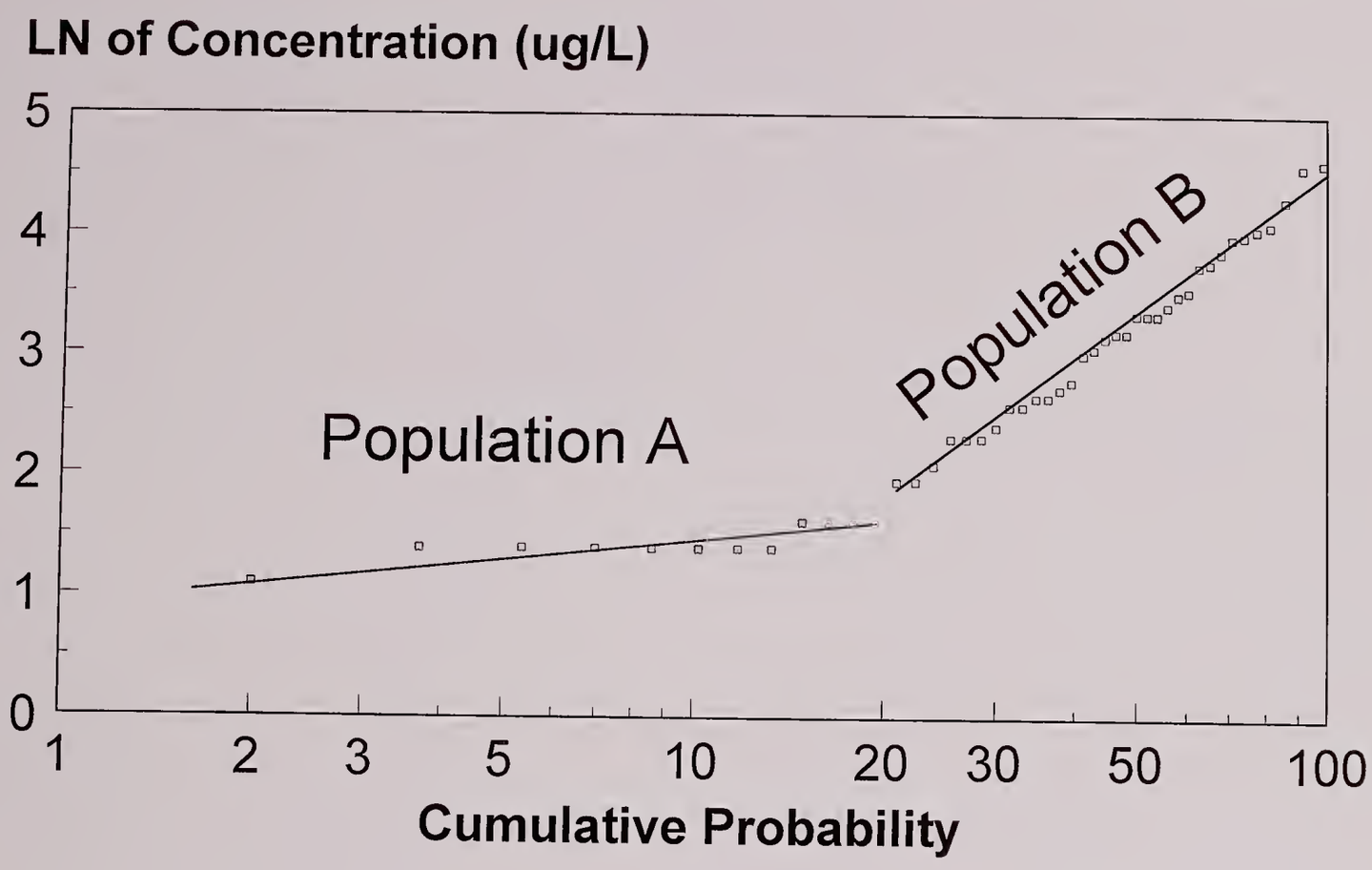


Figure W. Comparison of original and duplicate samples for BEHP in groundwater.

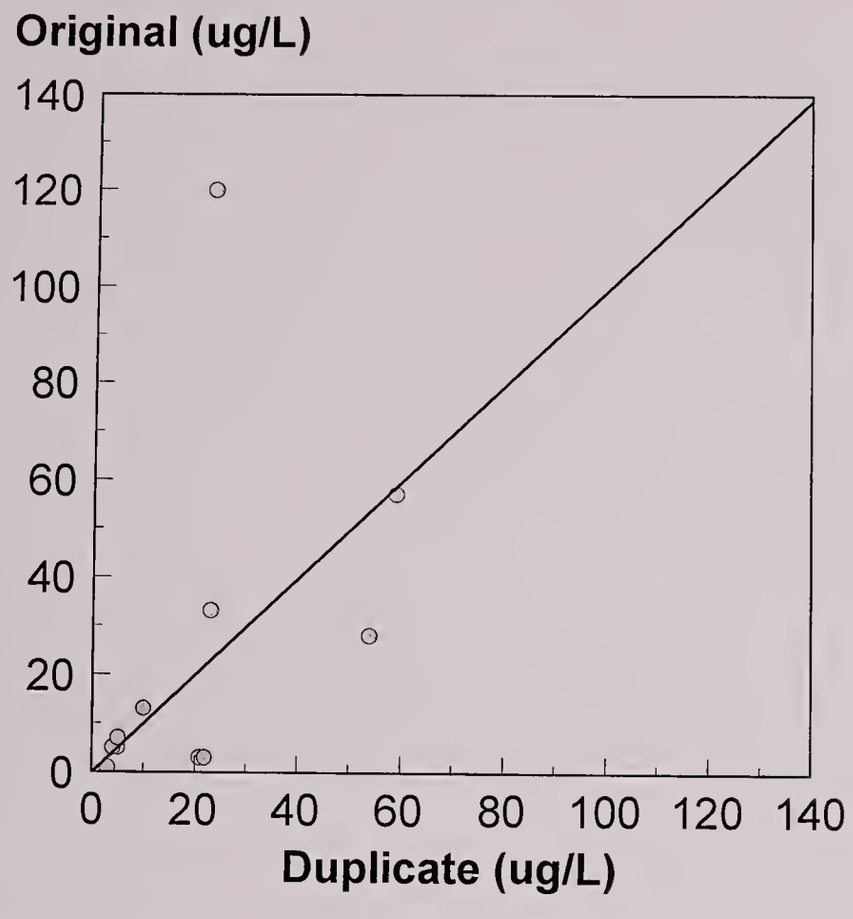
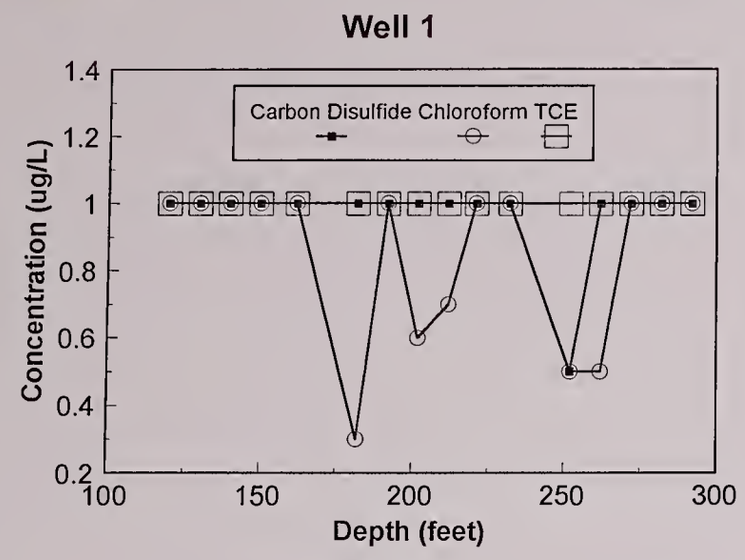
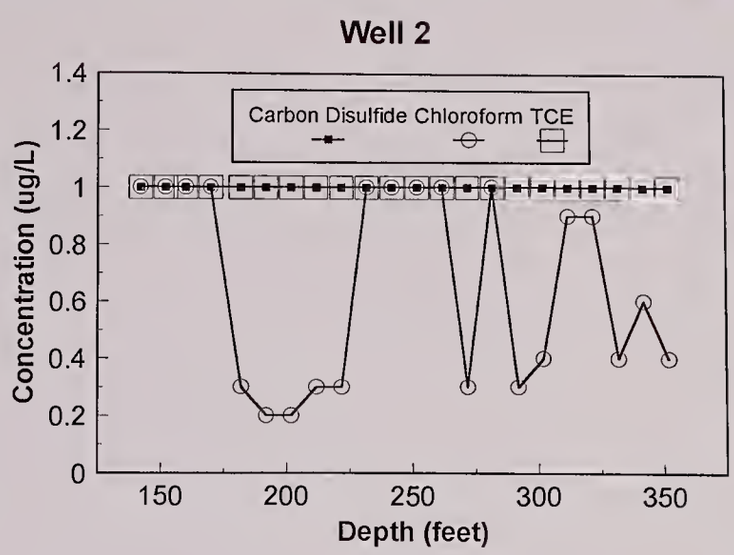
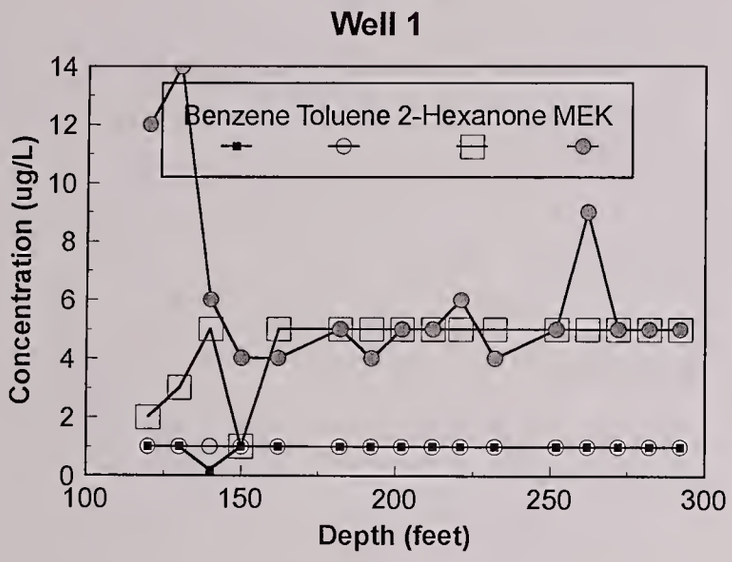


Figure X. VOC profile results for borings 1 and 2.







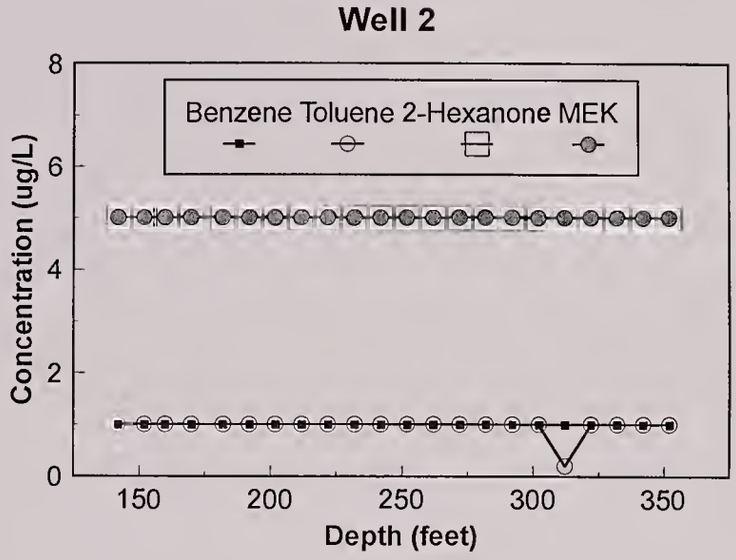


Figure Y. VOC profile results for borings 3 and 5.

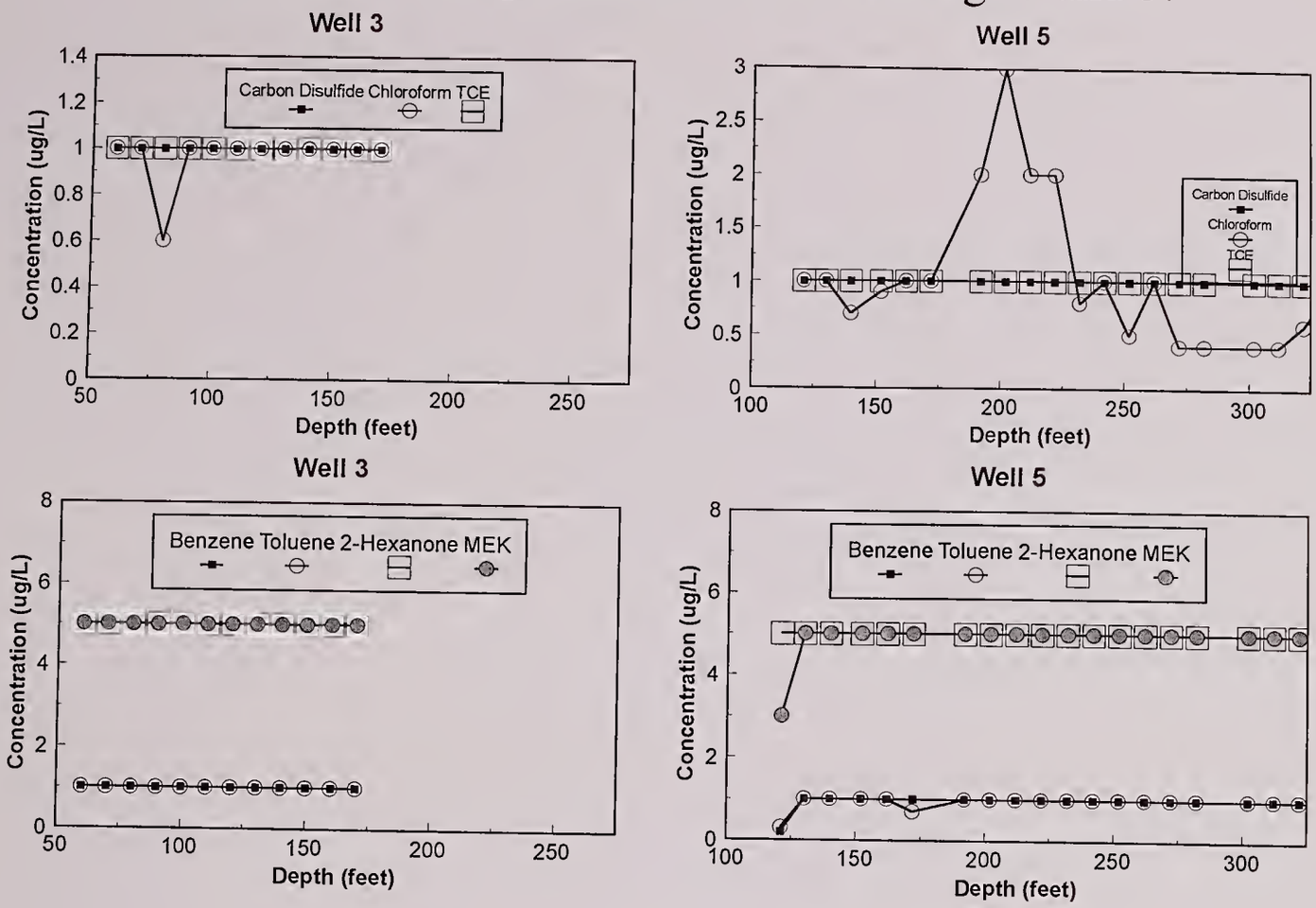


Figure Z. VOC profile results for borings 7 and 10.

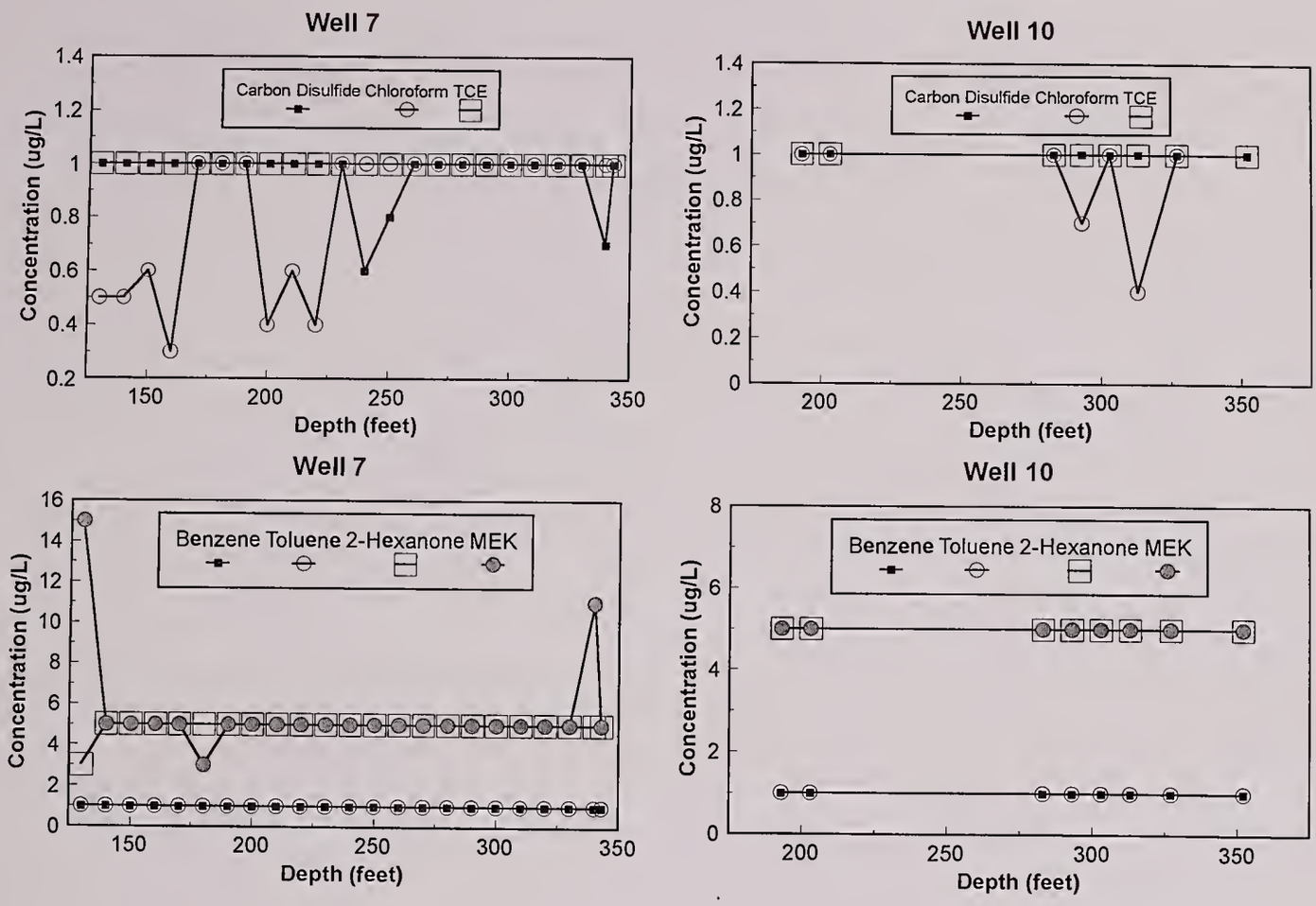
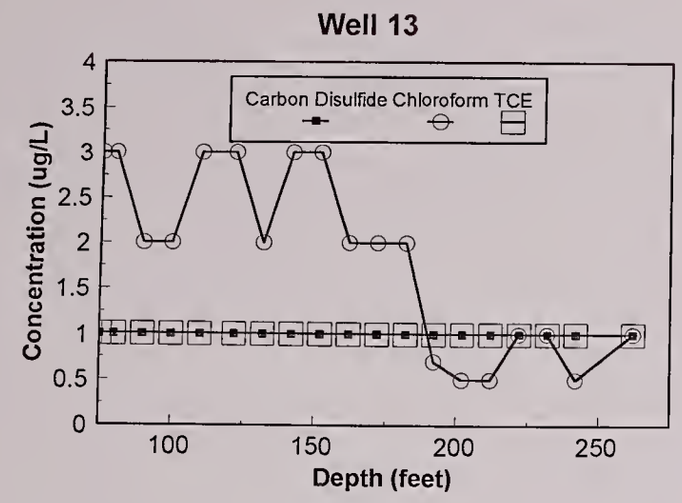
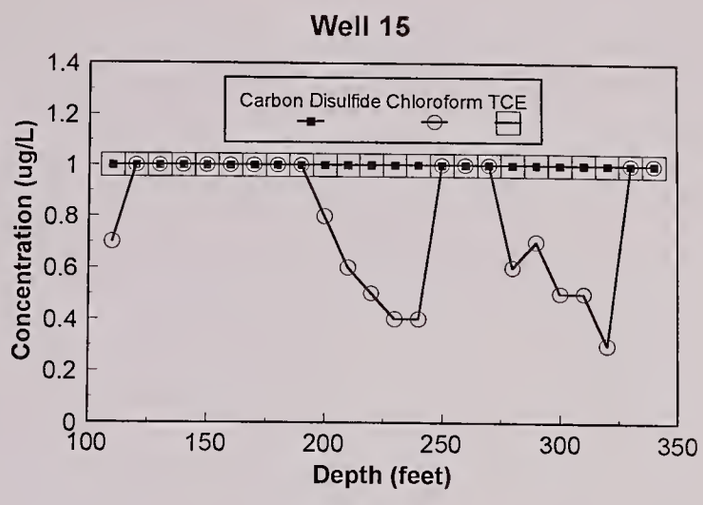
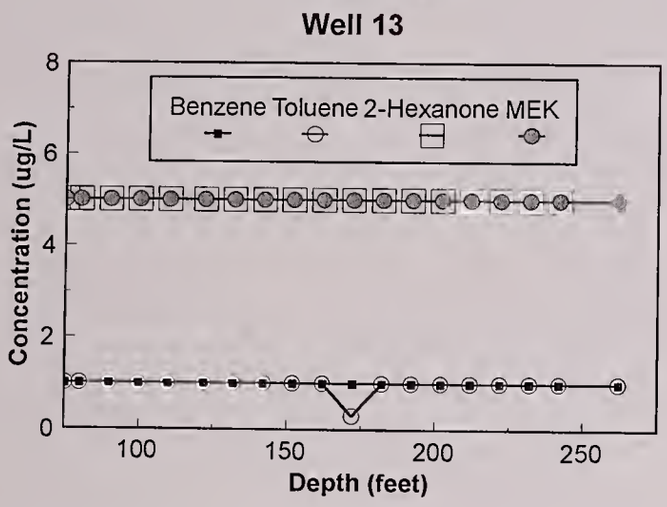


Figure AA. VOC profile results for borings 13 and 15.







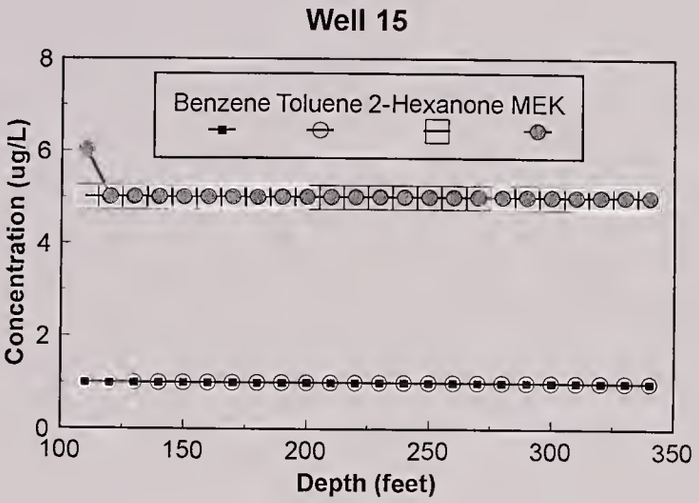


Figure AB. VOC profile results for borings 16 and 17.

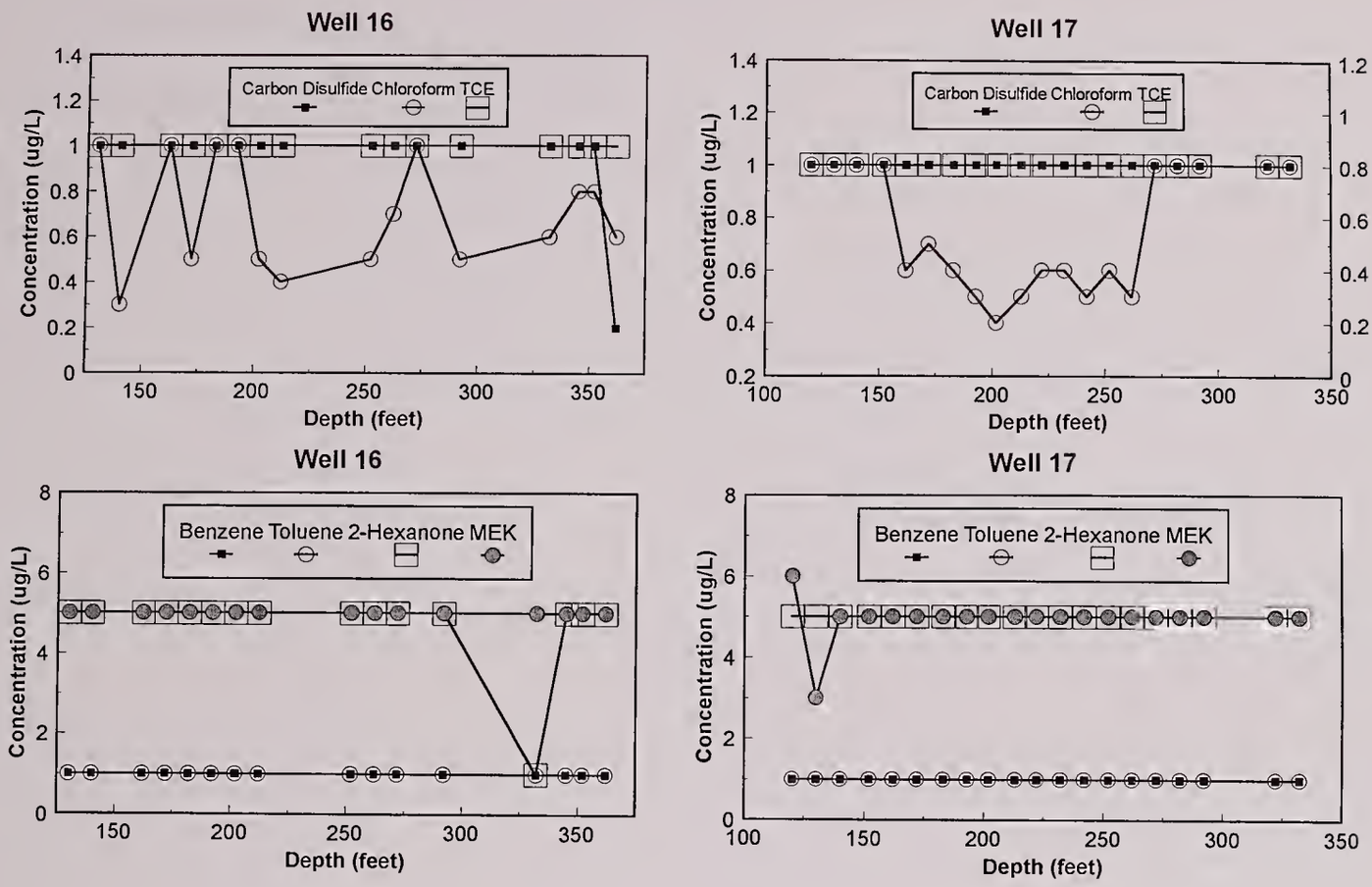


Figure AC. VOC profile results for borings 18 and 19.

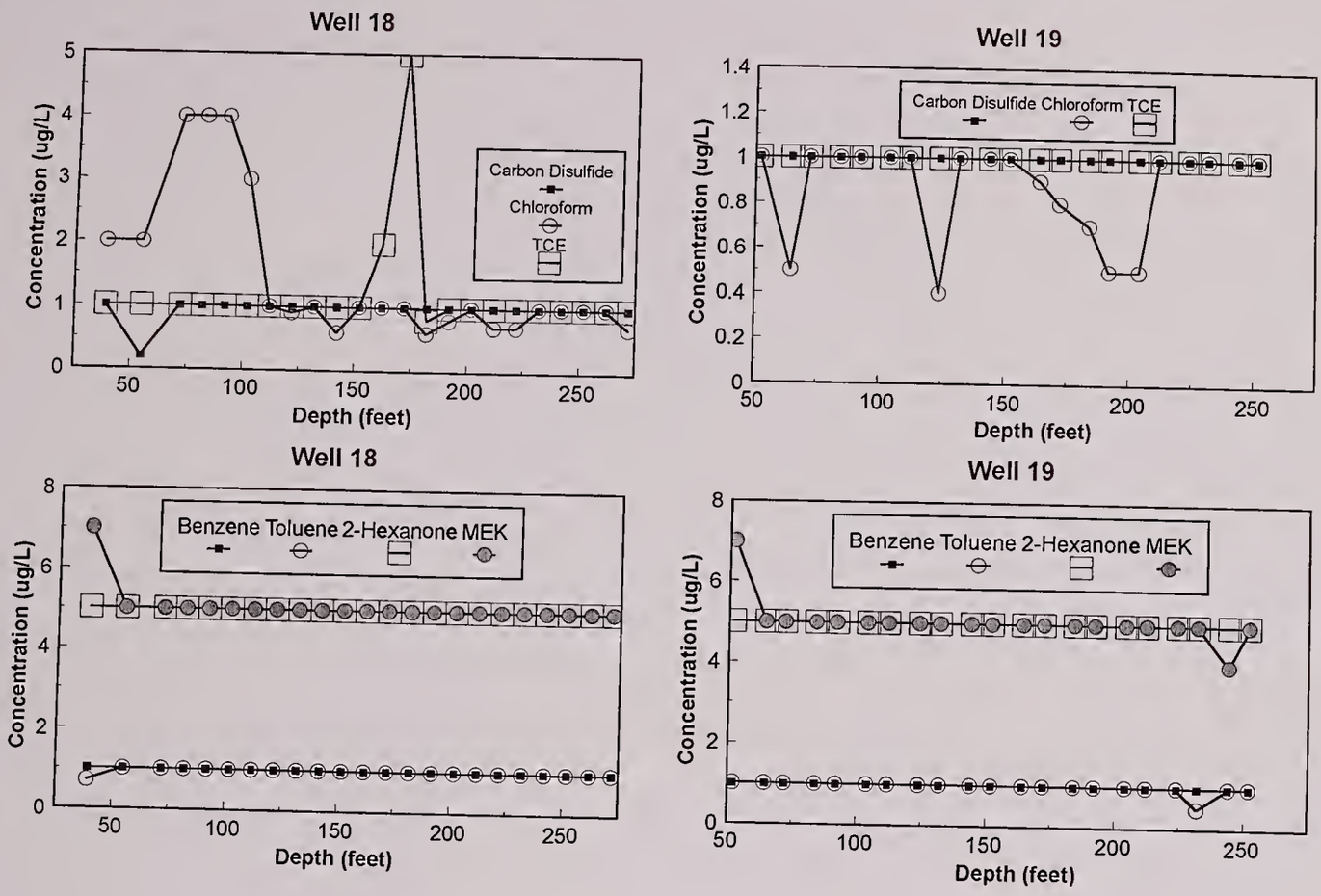
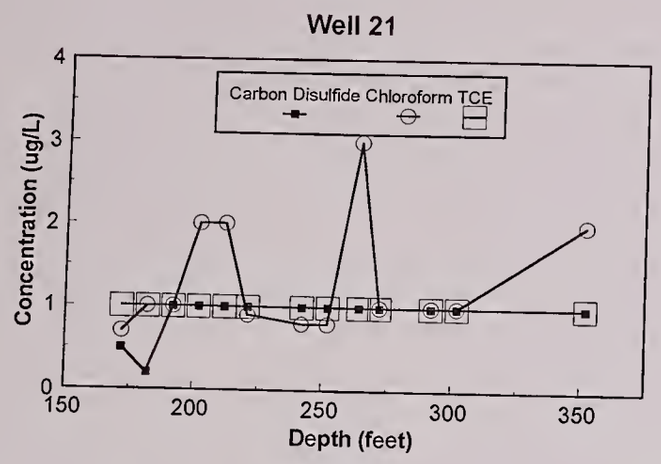
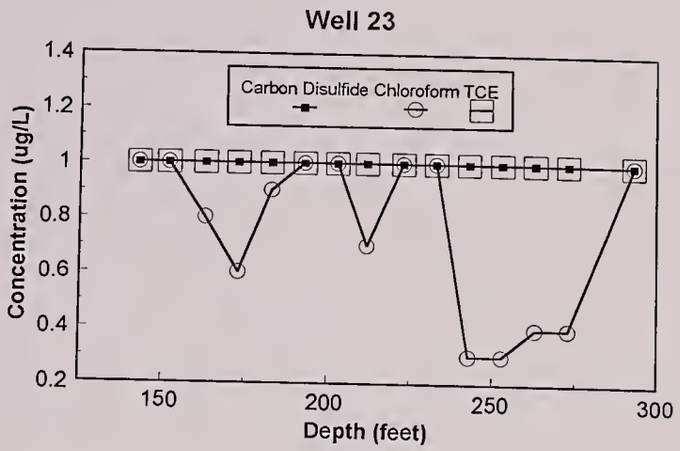
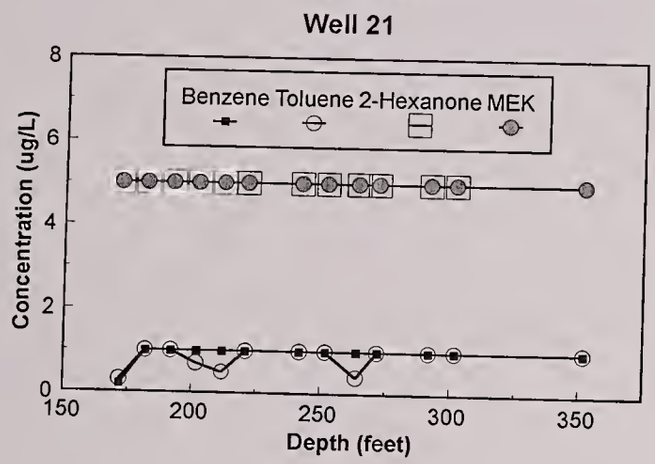


Figure AD. VOC profile results for borings 21 and 23.







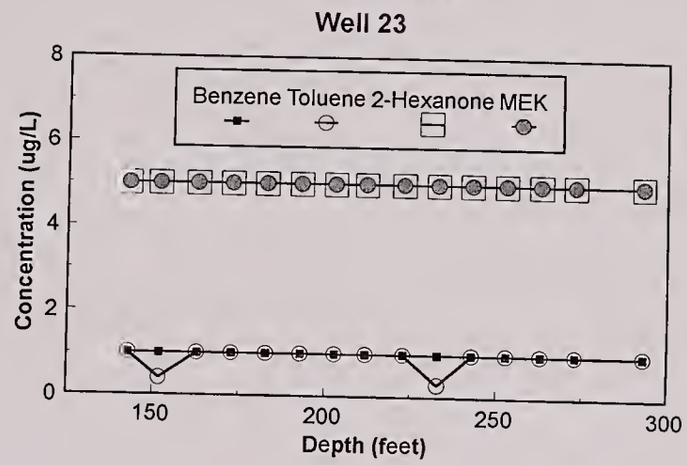


Figure AE. Tritium profile for groundwater at MW-13.

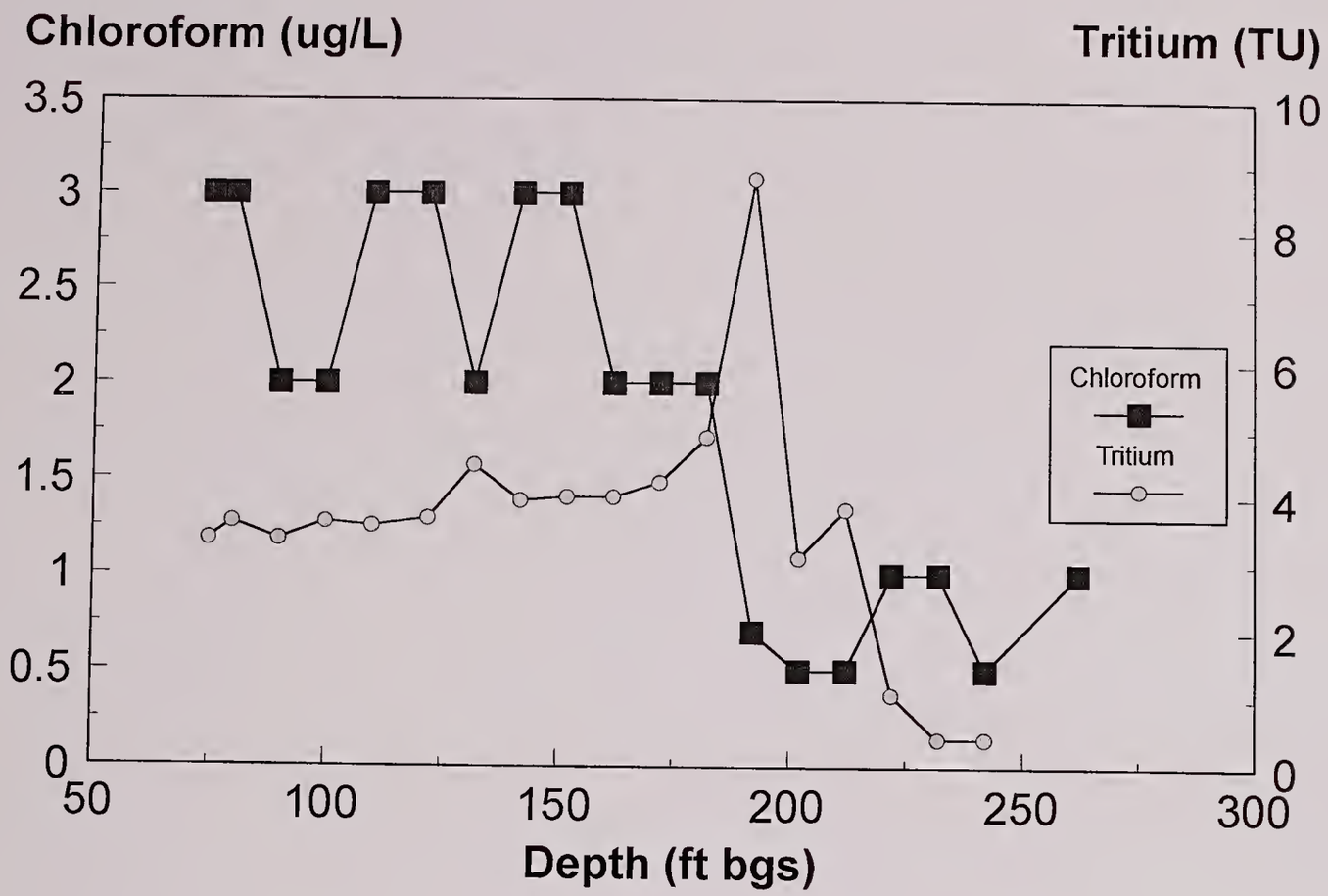
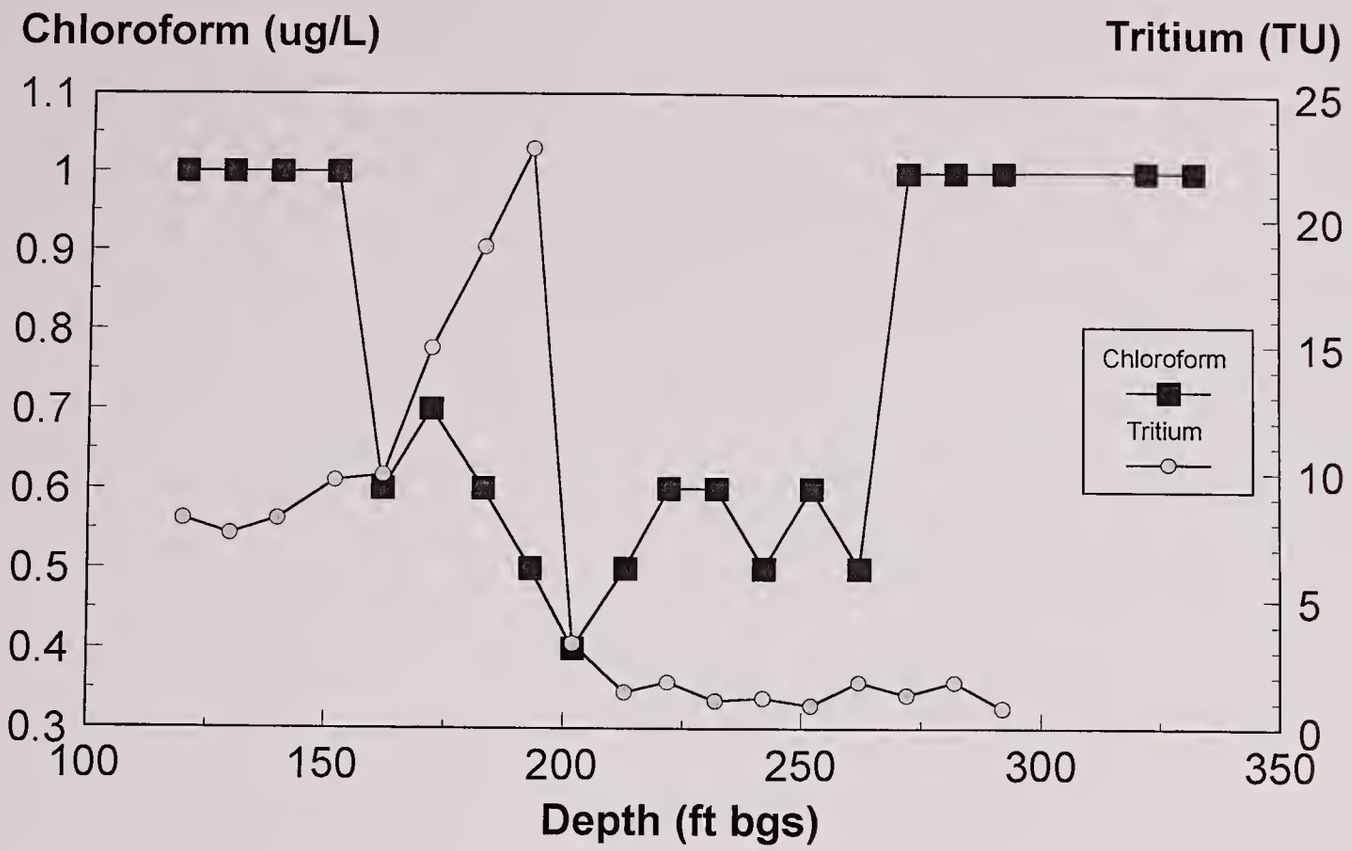


Figure AF. Tritium profile for groundwater at MW-17.



For Reference

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Bourne, MA 02532

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Jonathan
Bourne
5/6/13

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draftcompletiono02unse

draftcompletiono02unse

216-2

Draft completion of work report for the Camp Edwards impact area groundwater

Vol. 2 - Figures